

# Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIV.

CHICAGO, ILL., JULY 22, 1914.

Number 6.

## CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributors of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydratine's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

Charleston, S. C. Birmingham, Ala. Atlanta, Ga. New Orleans, La.

**DEXTER** Portland Cement  
THE NEW STANDARD

Sole Agents **SAMUEL H. FRENCH & CO.** Philadelphia



**Phoenix Portland Cement** UNEXCELLED FOR ALL USES.  
Manufactured by  
**PHOENIX PORTLAND CEMENT CO.**  
NAZARETH, PA.

Sole Selling Agent, **WILLIAM G. HARTRANFT CEMENT CO.**  
Real Estate Trust Building, PHILADELPHIA, PENNSYLVANIA.

**INDIANAPOLIS CABLE EXCAVATOR CO.**  
Beauty Avenue and New York Street Indianapolis, Indiana

**NEGLEY PATENTED EXCAVATORS**

**LELAND EQUIPMENT COMPANY**  
126-128 Pine Street San Francisco, Calif.  
Agents for Arizona, California and Nevada

**CHAS. T. TOPPING MACHINERY COMPANY**  
Agents for Western Penna. and W. Va. Bessemer Bldg., Pittsburgh, Penna.

**FIRE BRICK** "MOUNT SAVAGE." None Better.  
**FIRE BRICK** "REFRACTO" thoroughly dependable for boiler work and general purposes.  
**FLUE LININGS of FIRE CLAY**  
**FIRE PROOFING** THERMIC FIRE CLAY  
HOLLOW TILE for both partition and outside use.

**Union Mining Company**

GENERAL OFFICES

1113-1117 Fidelity Building, BALTIMORE, MD.

Manufacturing Plants: Mount Savage, MD.

Do You Sell  
**AMERICAN**

**KEENE**



**CEMENT**

"Strongest Keene Cement Known"

A Better Plastering Material

WRITE FOR BOOKLET AND PRICES

**AMERICAN KEENE CEMENT COMPANY**

Sigurd, Utah

Only one or two things

are essential in a first-class leather belt. Reliance, Sea Lion and White Strip have these things. Before you buy your next belt find out what they are. Write us, and we'll gladly tell you.

CHICAGO BELTING CO., 126 N. Green St., CHICAGO

## SPECIAL FEATURES OF THIS NUMBER

Dealer-Agent Distribution of Specialties . . . . .	Page 43
New Gravel Plant with Interesting Features . . . . .	" 34
Prices Held Down By Band of Brick Thieves . . . . .	" 26
Progress of Standard Specification Committee . . . . .	" 25
Proportioning Aggregates for Concrete . . . . .	" 22
Technical Society Activities . . . . .	" 21

Simple in Construction

Gigantic in Strength

**McCully Gyratory  
Rock Crusher**

Write for Catalog P.M. 4-58

**PRINCIPAL PRODUCTS**

Rock Crushing Machinery, Mining and Smelting Machinery, Cement Making Machinery, Wood Impregnating Plants, Loomis-Pettibone Gas Generators, Suction Gas Producers, Cyanide and General Steel Tank Work, Woodbury Jigging System.

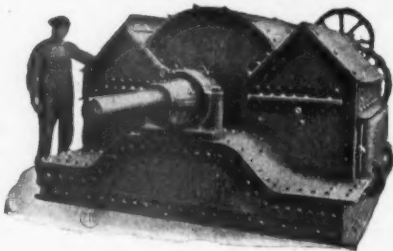
**Power and Mining  
Machinery Co.**

Cudahy (Suburb of Milwaukee), Wis., U. S. A. New York Office: 115 Broadway

District Offices—Chicago, El Paso, San Francisco, Atlanta.



M284.1

**"PENNSYLVANIA"  
HAMMER CRUSHERS**

For Pulverizing Limestone, Lime, Cement Rock, Marl, Shale, Etc.

Main Frame of steel, "Ball and Socket" Self-aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running. No other hammer Crusher has such a big Safety Factor.

**PENNSYLVANIA CRUSHER CO.**  
Philadelphia  
New York Pittsburgh

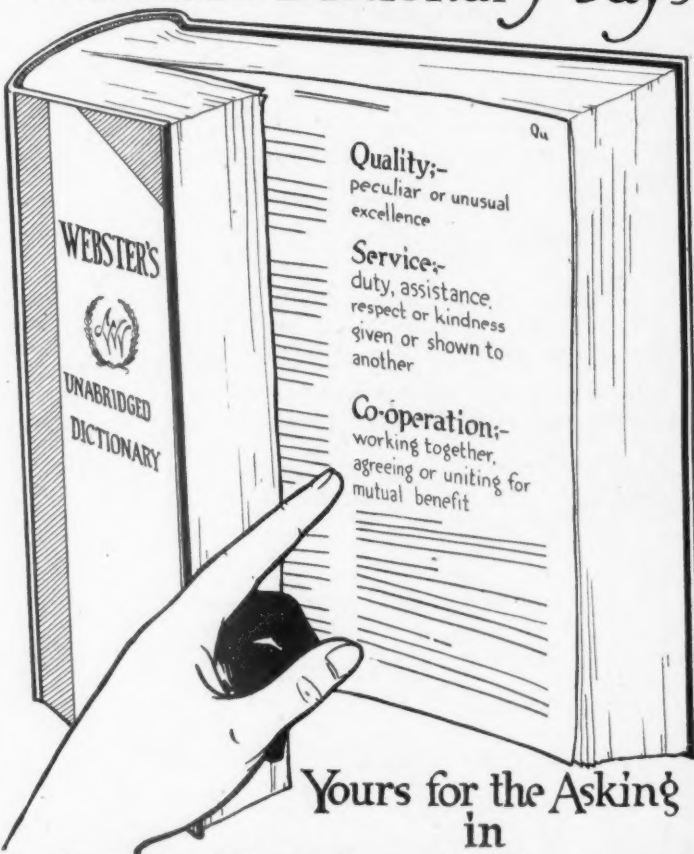
**VULCANITE PORTLAND CEMENT**

"THE BRAND with a REPUTATION"  
Great Strength Always Uniformly Sound

1894  $\equiv$  1/5 of a CENTURY  $\equiv$  1914

Our reputation for honorable, fair businesslike dealings, has merited the continued patronage of our first customers and has won the confidence of the trade. Our brand means special quality particularly adapted to the highest class of concrete construction.

**VULCANITE PORTLAND CEMENT CO.**  
LAND TITLE BUILDING PHILADELPHIA 200 FIFTH AVENUE NEW YORK

**Webster's Dictionary Says—**

Yours for the Asking  
in  
**Lehigh Portland Cement**

THIRTY YEARS OF EXPERIENCE IS  
BEHIND EVERY BARREL OF  
*The Old Reliable*

**Giant Portland  
Cement**

A RECORD IN LONG TIME TESTS, UNEQUALLED BY OTHER  
BRANDS OR LARGER OUTPUTS.

Let us show you.

**Giant Portland Cement Co.**

6th Floor Pennsylvania Building  
Philadelphia

**Canada Cement  
for Canadian  
Contracts**

Prompt deliveries anywhere in the  
Dominion

Write or wire nearest Sales Office  
for quotations

**Canada Cement Company Limited**  
Montreal Toronto Winnipeg Calgary

Mills: Montreal Hull Belleville Lakefield Port Colborne  
Shallow Lake Marlbank Winnipeg Calgary Exshaw

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS









# Some HAULING Figures

With TROY Reversibles and traction engine--

**7 cents per yard per mile**

With two-horse teams--

**26 cents per yard per mile**



TROY Reversibles working on the Elmdorf Estate, near Lexington, Kentucky

This is not an "exceptional" case or just one example on some striking job—these figures strike a fair AVERAGE.

Suppose you have an average haul of  $3\frac{1}{2}$  miles from the source of supply to delivery—and you've a choice between horse teams and a tractor plus six Troy Reversibles.

At a very conservative figure, your Troy train will be able to make **three** round trips per day, each wagon hauling  $3\frac{1}{2}$  cu. yds. per trip, 21 cu. yds. per train or about 63 yds. of material per day. Allowing for every known cost—interest, depreciation, salaries, etc.—the total cost would be \$15.29 per day or about **7 cents per yard per mile**.

Now to deliver 63 yds. per day with horses you would have to use 14 teams handling  $1\frac{1}{2}$  yds. per load, make 3 round trips and your total cost would be some \$56 per day, or about **26 cents per yard per mile**.

Of course, these figures won't check up exactly with your job, but if you do big hauling, you can make a wonderful saving with Troy Reversibles. Tell us about your work and we'll tell you just what you can do with Reversibles. Ask for Hauling book P. R.

## THE TROY WAGON WORKS CO., 101 E. Race Street, Troy, Ohio

### DISTRIBUTORS

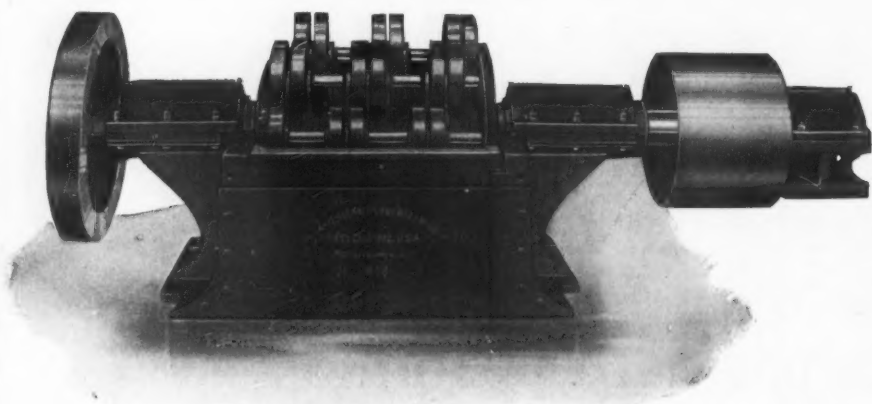
G. C. Hodges, Brooklyn  
Standard Supply and Equip. Co., Phila.  
Eastern Ry. Supply Co., Baltimore  
H. H. Hoover, Pittsburgh  
W. S. Brown & Sons, Birmingham  
A. Baldwin & Co., New Orleans

Brandeis Mach. & Supply Co., Louisville, Ky.  
So. Texas Implement Co., Houston  
W. M. Pattison Supply Co., Cleveland  
The Hudson-Feenauhy Co., Portland, Oregon  
E. R. Bacon & Co., San Francisco  
W. L. Cleveland & Co., Los Angeles

Landes & Co., Salt Lake City  
Western Metal Mfg. Co., El Paso  
N. J. Dinnen & Co., Winnipeg  
Canadian Equip. & Supply, Co. Calgary  
C. Paquet & Co., Quebec  
W. McNally & Co., Montreal

**Our best argument is 250 Troy outfits making good. "Making good" means saving 50 to 80%**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



**Withstands most rugged  
use—Performs its work  
with certainty—Does more  
and better work for less  
money.**

### **CRUSHES AND PULVERIZES**

Sandstone to Sand and Gravel to size desired and Limestone fine enough for Agricultural Purposes  
Mineral Ores for Concentration Purposes Coke to desired fineness Slag Brick Bats  
Sewer Pipe Feldspar Ferro-Manganese Pyrites Barytes Shale Etc.  
in tonnage and fines as wanted.

### **EACH RING EXERTS**

one and one-half tons centrifugal force and one ton striking force, and applies the same ten times per second, the most powerful factor as yet evolved in pulverizing machinery.

**GUARANTEED 30 DAYS' TRIAL**

Send for circular and particulars. Describe your material, name tonnage and fines wanted.

**American Pulverizer Company, E. St. Louis, Illinois**

## **JACKSON AND CHURCH CO.**

**Saginaw, Michigan**

### **SAND LIME BRICK PLANTS AND MACHINERY**

Rotary-table presses, wet and dry pans, mixers, hardening cylinders, lime crushers and pulverizers, bat crushers, lime hydrators, lime and sand elevators and conveyors, turntables, cars, tube mills, rotary dryers, steel tanks, boilers, engines, heaters, etc.

**Especial Attention to Complete Plants.**

**We pioneered the Sand-Lime Brick business in America.**

**Twelve years continuous and successful experience as brick makers and manufacturers of brick machinery.**

**We have the "know-how" and the equipment. Let us serve you.**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

Two more prominent cement manufacturing plants have ordered

## Bradley Hercules Mills

Every installation breaking records for output and low cost of maintenance

It's the only mill manufactured which takes raw material direct from the gyratory crusher and pulverizes to a fineness suitable for feed for the finishing mill, in a single operation and without use of auxiliary apparatus.

Its cost for maintenance is so low that it is unbelievable to those who have not investigated—investigation will convince the most skeptical that it is the most practical and successful break-down mill ever offered to the cement manufacturer.

It has an output of from 110-130 barrels of clinker per hour, 50% passing 100 mesh sieve—30-40 tons limestone to same fineness—using from 175-200 H. P. when operating at full capacity.

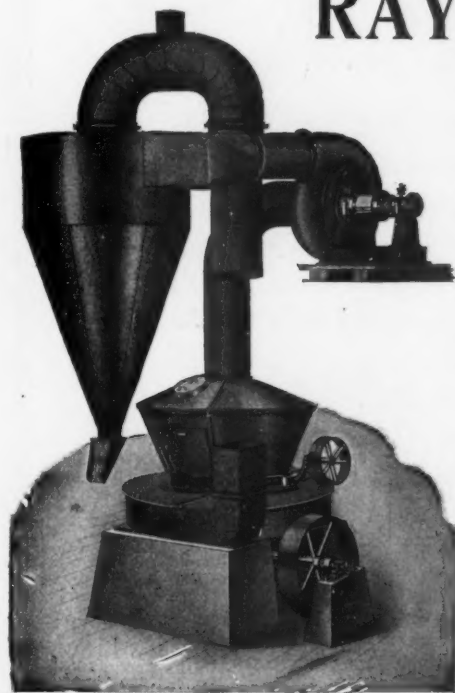
Why not send for descriptive literature and list of installations

**Bradley Pulverizer Company, Boston**

## What One Manufacturer Has Learned After Seven Years

About seven years ago we approached a large manufacturer, in whose process a certain material is ground, with the facts concerning the advantages to him of securing a more **finely ground** and **uniform** product by the use of the

## RAYMOND SYSTEM OF GRINDING With Air Separation



He was not inclined to agree with us.

Since then several of his competitors making the same thing have taken advantage of the Raymond System, with the result that this first manufacturer has finally awakened to the fact that his competitors are getting a preference because of a finer and more uniform product.

This manufacturer is now putting the Raymond System in his plant and will unquestionably achieve the same results his competitors have enjoyed; a better product which will get the business for him and factory savings of considerable proportions.

The Raymond System has shown its ability to produce a better product, or a lower cost or both, in over 75 different kinds of material, with results in each case **guaranteed** in advance

Raymond Bros. Impact Pulverizer Co.,  
1301 N. Branch St., Chicago.

Please send us your Book on Modern  
Methods of Pulverization.

Name .....

Street .....

City..... State.....

SEND FOR  
THE  
←  
**RAYMOND  
BOOK—NOW**

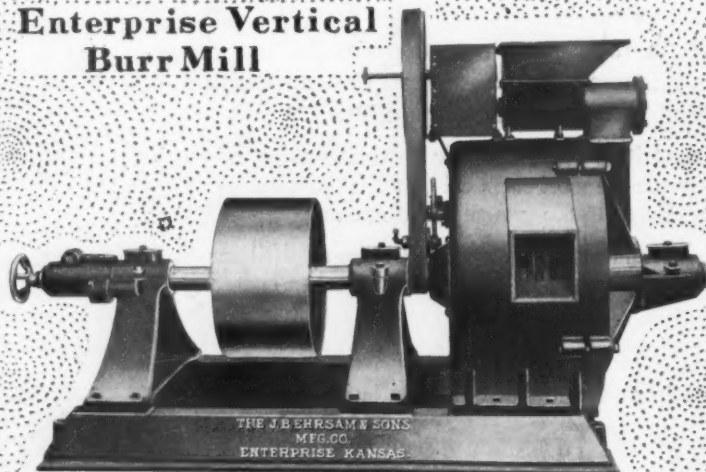
We design special machinery  
and methods for Pulverizing,  
Grinding, Separating and Con-  
veying all powdered products.  
We manufacture Automatic  
Pulverizers, Roller Mills, Vac-  
uum Air Separators, Crushers,  
Special Exhaust Fans and Dust  
Collectors. Send for the Book.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



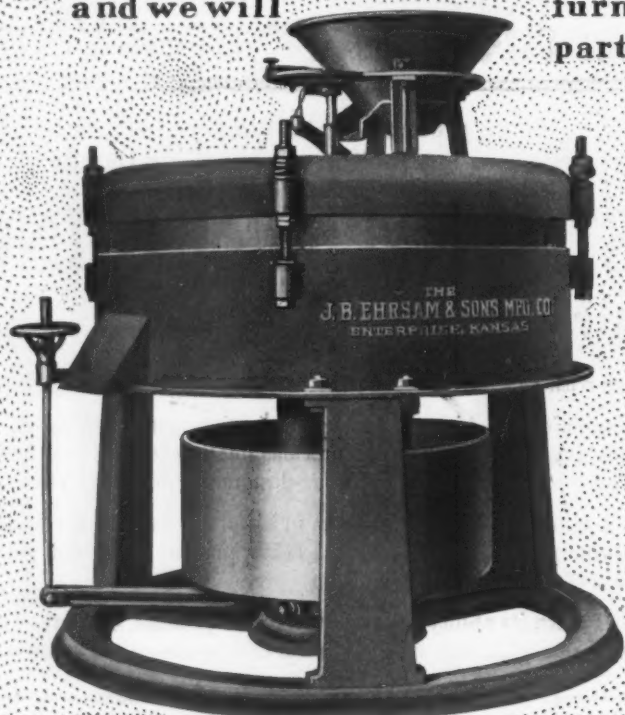
# Equip your grinding plant with EHRSAM grinding & separating machinery

Enterprise Vertical Burr Mill

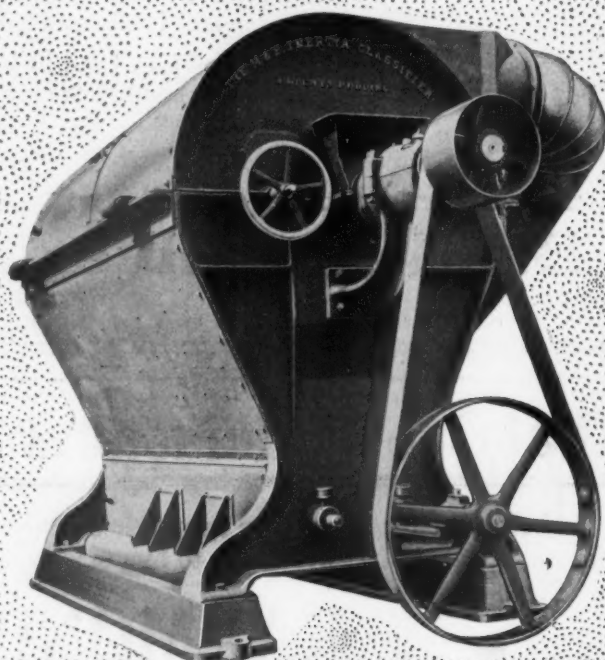


THE MORSE-EHRSAM SYSTEM of GRINDING & SEPARATING will enable you to produce a finer product without corresponding increase in power.

SEND US A SAMPLE of your material stating fineness and capacity required and we will furnish full particulars.



Horizontal Burr Mill



Inertia Classifier

THE INERTIA CLASSIFIER is of inestimable value in plants where a fine material is required owing to its low cost per ton capacity and owing to the small amount of power required per ton capacity.

It can be operated in connection with Burr Mills Hammer Mills or any other type of grinding Mill.

**J.B. EHRSAM & SONS**  
Manufacturers of GYPSUM PLASTER MILL MACHINERY. **MFG. CO.** ENTERPRISE, KANSAS.

# "Gates" Gyratory Breakers

*Over 7000 in Actual Operation*

*To  
Facilitate  
Shipment  
Complete  
Machines*

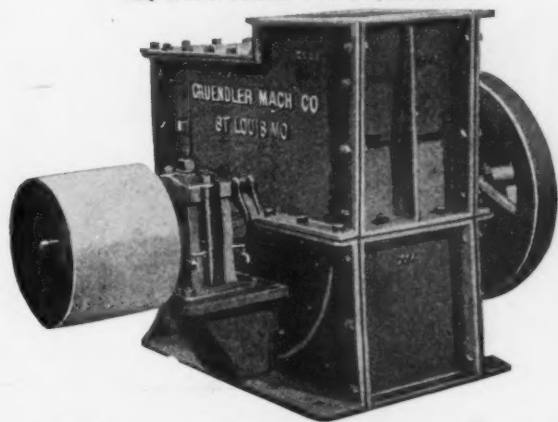


*For  
Convenience  
of Those  
Operating the  
"Gates"*

**Allis-Chalmers Manufacturing Co.**  
Milwaukee, Wis.

## GRUENDLER PULVERIZERS

Grind perfectly Limestone, Phosphate Rock, Coal, Brickbats, Coke, Kaolin, Shale, Marl, Fireclay, Bones, Tankage, Fertilizer Materials and Ores of all kinds.  
Any Desired Fineness in ONE Operation.



### One Customer Writes:

"The Crusher works to our entire satisfaction and we believe we have selected the best make for our purpose."

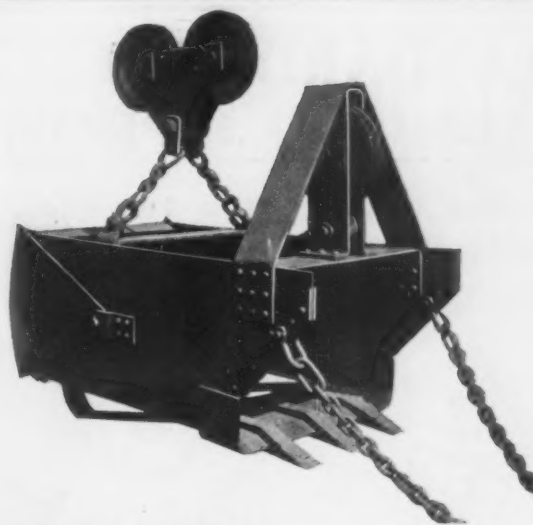
### Another One Says:

"The two Crushers you have furnished us have given entire satisfaction. We are now considering putting in another machine of larger capacity; kindly state lowest prices and sizes."

We manufacture these machines in sizes from 3 to 400 tons daily capacity. The entire interior is constructed of steel and they are built for great strength and durability throughout. They are easily handled, all adjustments being made from the outside.

*Write for Catalog and Prices*

**GRUENDLER PATENT CRUSHER & PULVERIZER COMPANY**  
924-928 N. FIRST STREET SAINT LOUIS, MO



## DULL'S

### Rear Dumping Bucket

is especially adapted for gravel plants, stripping purposes, loading cars and handling bulk material by means of cableway excavators.

**Note the Strong and Rigid Construction**

**The Raymond W. Dull Company**  
1921 Conway Bldg., Chicago, Ill.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



# Limestone Screenings Now of little value, can be converted into a commodity commanding a fair price when ground into **AGRICULTURAL LIMESTONE**

WITH

## THE WILLIAMS UNIVERSAL FINE GRINDER!

The Williams Universal Fine Grinder will take your screenings and in one operation convert them into a uniformly fine product, admirably suited for agricultural purposes, a product now greatly in demand. This machine, as you will note in the cut, is adjustable to grind fine or coarse as desired, this adjustment being made while the machine is in operation, by a hand wheel on the outside.



Another feature about this machine to be remembered is that it will produce these ever uniform results **with the minimum expense for maintenance and power**, because the various methods of adjustment employed are by far the most practical yet devised. Further details regarding this machine are given in Bulletin No. 4, a copy of which should be in your hands.

Let us prove these statements; let us show you what results others are getting with this machine. Do not deprive yourself of the opportunity to increase your profits any longer. NOW is the time to ACT.

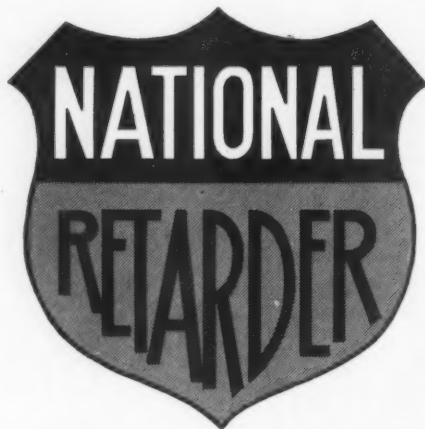
### THE WILLIAMS PATENT CRUSHER & PULVERIZER COMPANY

Works: ST. LOUIS, MO.

General Sales Department, Old Colony Building  
 CHICAGO, ILL.

SAN FRANCISCO: 268 Market Street

## STANDARD STRENGTH      UNIFORM QUALITY PROMPT SERVICE



### THE NATIONAL RETARDER COMPANY

—MILLS AT—

PORT CLINTON, OHIO.

WEBSTER CITY, IOWA

BRANCH OFFICE: TOLEDO, OHIO

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS





## AUSTIN GYRATORY CRUSHERS

Made in Eight Sizes

50 to 5000 Tons Per Day

Plans and Specifications submitted and expert advice free on any problems involving rock-crushing or earth-handling.

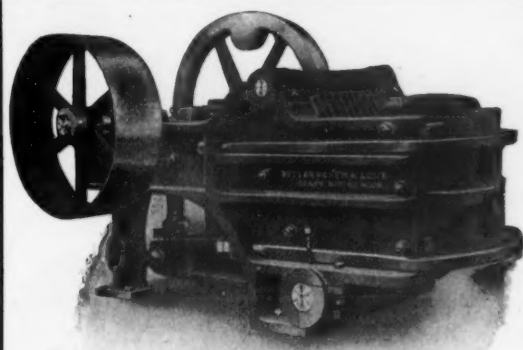
**AUSTIN MANUFACTURING CO.**

New York Office: 50 CHURCH STREET

CHICAGO

Canadian Agents: MUSSENS, Ltd., Montreal

We manufacture:—Road and Elevating Graders, Scarifiers, Road Rollers. Quarry Cars, Dump Wagons, Stone Spreaders, Street Cleaning Machinery.



## Jaw and Rotary CRUSHERS

For all Rocks and Ores Softer than Granite

**GYPSUM MACHINERY**—We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

Special Crusher-Grinders for Lime

**Butterworth & Lowe**

17 Huron Street,

Grand Rapids, Mich.

Nippers—17 x 19", 18 x 26", 20 x 30", 24 x 36" and 26 x 42"



Crackers—6 sizes—many variations.



The Grinding is Finished in one Operation

All working parts can be removed and replaced without disturbing belts, feeder, etc.

## BONNOT PULVERIZER

**Grinds and Screens Limestone, Raw Lime and Hydrated Lime**

**Does it at One Operation. Gives You Any Desired Fineness**

GRINDING LIME IS LARGELY A SCREENING PROPOSITION. THE BONNOT PULVERIZER HAS THE LARGEST SCREENING SURFACE AND CONSEQUENTLY THE GREATEST CAPACITY.

NO OTHER MACHINE LIKE IT IN THE ACCESSIBILITY OF SCREEN AND GRINDING PARTS.

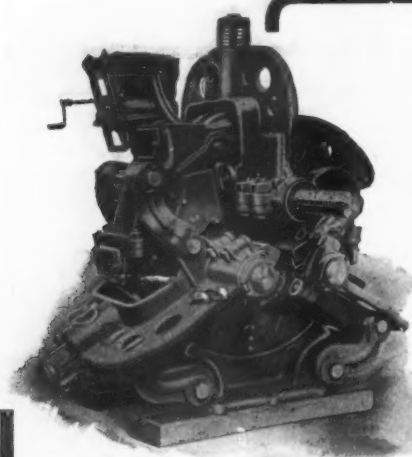
No. 4 Catalog Explains These Advantages

**THE BONNOT COMPANY**

909 N. Y. Life Bldg.  
KANSAS CITY, MO.

**CANTON, OHIO**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



# MAXECON

## Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY. Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON

**WE DO NOT CLAIM ALL of the CREDIT for this achievement**

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

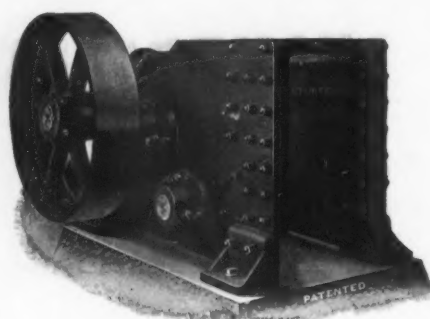
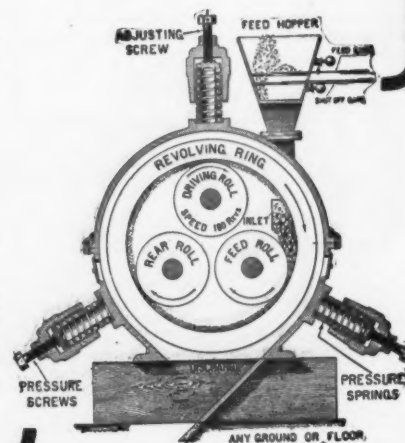
## THE RING WOBBLES

The FREE WOBBLING POUNDING RING instantly and Automatically ADAPTS its position to the variations of work.

Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

# KENT MILL CO.

10 RAPELVEA ST., BOROUGH OF BROOKLYN, N. Y. CITY  
LONDON, W. C., 31 HIGH HOLBORN  
BERLIN-HOHENSCHOENHAUSEN



## STURTEVANT MACHINERY

### CRUSHERS

Thirty Years of Practical Experience has taught us that no one machine is adapted to all purposes. Customers expect correctly designed machines for their special work. Our large line enables one to select properly. It consists of:

**CRUSHERS**—For coarse, medium and fine work on hard or soft rock. Jaw,

Rotary and Hammer design.

**CRUSHING ROLLS**—Coarse, medium and fine. Hard or soft rock—wet or dry.

**TRI-ROLL MILLS**—For medium crushing, giving Two Roll Reductions.

**RING-ROLL MILLS**—For pulverizing hard materials.

**EMERY MILLS and HAMMER-BAR MILLS**—For pulverizing softer materials.

**SCREENS**—Inclined Vibrating and Rotary for fine or coarse work—wet or dry.

Sampling Crushers, Rolls, Grinders and Screens.

Send for Catalogue.

## STURTEVANT MILL CO., BOSTON, MASS.

NEW YORK CHICAGO

DENVER PITTSBURGH

VICTORIA, B. C. LONDON ENG.



Clyde Hydrator with Hood  
"The common sense way"

## Don't Buy Hydrated Lime

at random; **specify "Clyde Process" Hydrated Lime.** The material that has the qualities **you** want, either as a consumer or a dealer. The presence of this **quality** has enabled Clyde operators to sell 90% of the Hydrated Lime used in America. Insist on getting "Clyde Process" Hydrated Lime, it will put snap into the appearance of your work, it will ginger up a sick selling organization. If your dealer or producer doesn't carry this material, send us his name, we will tell you where you can get it in your neighborhood. We furnish complete "Clyde Process" Hydrating plants with capacities from 1 ton an hour up. Interesting booklets for the asking.

*"The Man that put QUALITY into Hydrated Lime."*

## H. MISCAMPBELL, Duluth, Minn.

Patentee and Sole Manufacturer of Clyde Hydrators

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



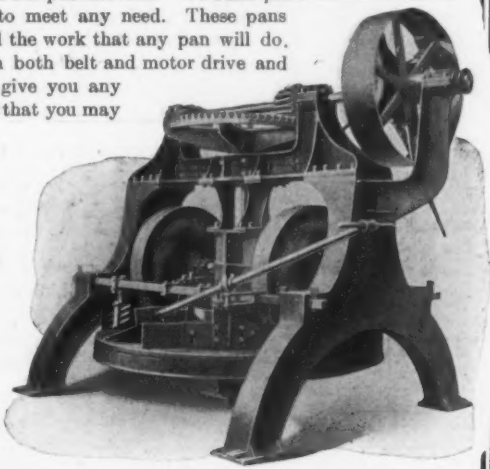
## YOUR PAN NEEDS

**T**HIS pan is the identical pan required for your plant and it should speak to you convincingly of our pan quality. It has put many

Sand-Lime Brick Plants on a paying basis and will make money for you. There is no line of pans made which will compare with the "Built Right, Run Right" line and your needs can be fully taken care of from our peerless line. We build pans with a range in size and capacity to meet any need. These pans are adapted for all the work that any pan will do. We have them in both belt and motor drive and will be pleased to give you any points on our pans that you may inquire about.

A poor pan is an expensive proposition. Its inefficiency shows in the quality of your product and the size of your repair bills. It also limits your capacity by handicapping the rest of the equipment. Real

economy would suggest that your pans be the best possible. We will be pleased to talk pans or any other equipment with you.

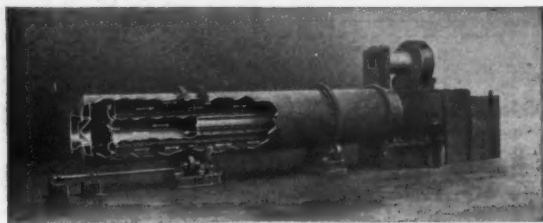


*We Build Complete Equipments for  
Sand-Lime and Clay Brick Plants*

**The American Clay Machinery Co.**

Willoughby, Ohio, U. S. A.

## SPECIALISTS IN THE DRYING FIELD FOR THE LAST 16 YEARS



*Section showing direction gases pass thru the dryer.*

## RUGGLES-COLES "DOUBLE SHELL" DRYERS

are used in all parts of the world, there being more than 400 installations. Over half a hundred are used for drying sand and gypsum at plaster, brick and cement plants.

We build six regular types of dryers, but for special work we build machines to order.

*Book "What We Dry" will interest you.*

**Ruggles-Coles Engineering Co.**

CHICAGO OFFICE  
McCormick Building

50 Church Street  
NEW YORK

**American Steel & Wire Company**

## Triangle Mesh Concrete Reinforcement



Union Central Life Insurance Building, Cincinnati, Ohio  
Cass Gilbert & Garber & Woodward, Architects

**I**N this modern building about 100,000 square feet of Triangle Mesh Concrete Reinforcement were used.

Triangle Mesh Concrete Reinforcement is made from Cold Drawn Steel Wire. Tensile strength 85,000 pounds per square inch. Furnished in rolls of 150, 200 and 300 feet long.

Chicago  
Pittsburgh

New York  
Worcester

Cleveland  
Denver

Export Representative, U. S. Steel Products Co., New York  
Pacific Coast Representative, U. S. Steel Products Co., San Francisco  
Los Angeles Portland Seattle

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS





## We Help the Dealer Increase His Business

A Dealer's Aid Publicity Bureau has been established for the benefit of our trade.

Any dealer who sells

### Monarch Brand Hydrated Lime

has the advantage of this Bureau free of charge.

We can show the average dealer how he can increase his sales by using our Dealer's Aid Bureau.

*Write us at once for details.*

**THE NATIONAL LIME & STONE CO.**  
CAREY, OHIO



Second National Bank Building, Toledo, Ohio

## Sell a Standard Lime

When the architect specifies lime or when the contractor orders it they naturally think of

### Tiger Brand White Rock Finish HYDRATED LIME

It is not only of standard quality but it has been advertised for years, and these men know it will not pit or blister, and that it spreads smoothly under the trowel.

It is easier to sell "Tiger Brand" because the demand for it has been created for you.



**The Kelley Island Lime & Transport Co.**  
Cleveland, Ohio



# BANNER HYDRATE LIME

Stands for the Four Important Essentials:

Best for Mason's Mortar

Best for Lubricating Plaster Mixtures

Best for Finest White Finishing Coats

Best for Cool Working Chemical Reactions

## NATIONAL MORTAR AND SUPPLY CO.

A. H. LAUMAN, President

PITTSBURGH, PA.

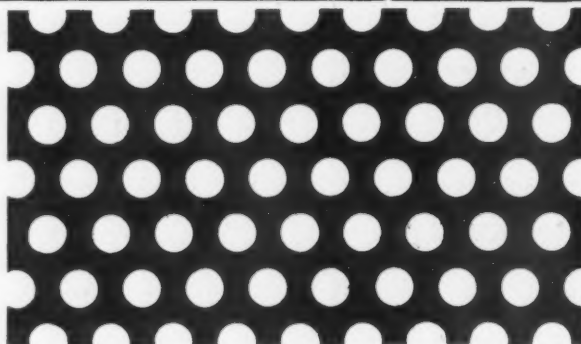


## PERFORATED METALS

Our Perforated Products have a reputation for accuracy and general high quality, shipments are prompt, and prices the lowest.

Our plant is equipped with modern perforating machinery, and we specialize in this product, elevators and conveyors, and SIMPLEX RIVETLESS CONVEYOR CHAINS.

WE SOLICIT YOUR INQUIRIES



**CROSS ENGINEERING CO.**  
CARBONDALE, PA.

## SCREENS

For Every Purpose

Revolving Screens

Conical Screens

Shaking Screens

FOR:

Stone, Gravel, Sand, Cement, Lime, Coal, Coke, Steel Floors and Gratings, Grilles and Ventilators, Fire Escape Platforms, Etc.

SEND FOR ILLUSTRATED CATALOG

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

# The Ohio and Western Lime Company

WORKS AT  
Huntington, Indiana  
Marion, O.  
Gibsonburg, Ohio  
Festonia, Ohio  
Sugar Ridge, Ohio  
Tiffin, Ohio  
Genoa, O.  
Limestone, Ohio  
Lime City, Ohio  
Portage, Ohio  
Lucky, Ohio  
Bedford, Ind.

MANUFACTURERS OF AND WHOLESALE DEALERS IN

Ohio and Indiana White Finishing Lime, Ground  
Lime, Lump Lime, Fertilizer Lime, Hydrate  
Lime, Cement, Plaster, Hair, Etc., Etc.

Capacity  
8000 Barrels  
Per Day

MAIN OFFICE: Huntington, Ind.

Branch Office: Marion, Ohio.

IF IT IS  
**LIME**  
WE MAKE IT  
(STRONGEST IN OHIO)

**B**ULK and Barreled -:- "MASON'S HYDRATE"—For Brick-work, plastering and masonry. -:- "LIME FLOUR"—Hydrated Finishing Lime—Best on the market. -:- "CLOVER GROWER"—Land restorer, for the farmer—none better. -:- "CARBO HYDRATE"—Soil sweetener—crop producer. -:- Prompt shipments. -:- A dealer wanted in every town. -:- WRITE OR PHONE FOR PRICES.

**The Scioto Lime and Stone Co.**  
Delaware, Ohio

## MITCHELL HYDRATED LIME

added to concrete makes it denser, stronger and watertight

**D**R. E. W. Lazell the well known lime expert says: "the denser the mortar or concrete, the greater the strength, other factors being equal. This fact is, I think, generally admitted. If, then, hydrated lime increases the density, the strength of the mortar or concrete must be increased. The question therefore resolves itself into proving whether or not hydrated lime increases the density.

It is well known that mortars composed of Portland cement and sand are harsh working and non-plastic, that is, they are

not easily molded or troweled. These harsh mortars require considerable manual work to mold or to form into any given shape. The addition of hydrated lime overcomes this harshness, rendering the mortar more plastic. It must therefore follow that the same amount of manual labor in molding or troweling will produce a denser mass.

In the writer's opinion, the greatest advantage of the use of hydrated lime is this quality of rendering the mortars more plastic, the increased plasticity resulting in greater density. Exactly the same argument applies to concrete. Concrete containing a small amount of hydrated lime is much more plastic and smoother

working than similar concrete containing no hydrate. Because of this greater plasticity the same amount of tamping would result in a denser concrete. The part played by the hydrate is wholly mechanical, imparting greater density to the concrete. It is further a well known fact that lime paste tends to retain its mechanically mixed water, thus hydrated lime retards the drying out of both mortar and concrete and supplies the water necessary for the full development of the strength of the cement. This quality of hydrated lime is particularly valuable when used in cement mortar, since the affinity of the hydrate for water keeps the mass damp and allows the cement to gain its full strength."



**MITCHELL LIME CO.**

1515 Consumers Building,

CHICAGO, ILL.

Works: Mitchell, Indiana

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

# HYDRATED LIME

## Its Marvelous Increase In Consumption

### The Kritzer Service

Any lime can be successfully hydrated by our process; but whether your lime can be hydrated and successfully marketed is another question. We study your proposition and the possibilities of its commercial success, and advise you accordingly. Our ten years' experience in the business is a valuable assistance in this. Ours is not a mail order proposition. We investigate our customers' proposed plant thoroughly before we will enter into a contract with them. We turn down more prospects than we advise to go into the business. We can't afford to have any failures. Our customers' success is our success.

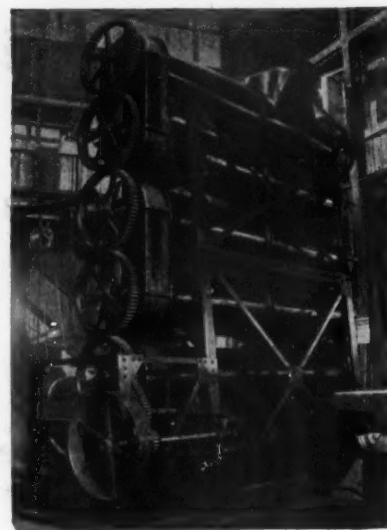
**WRITE TO US**

### Are You Meeting the Increasing Demand for Hydrated Lime?

There is nothing forced or unnatural about the growing popularity of this product. It is a natural growth resulting from a widespread awakening to the advantages of Hydrated Lime for a variety of uses—as waterproofing for Concrete, in wall plaster, and in almost every case where lime is called for. In hydrated form it is weatherproof, more easily handled, and better adapted to modern methods, both of commerce and construction. A continued growth of the demand may therefore be expected.

### The Kritzer Way

insures a product which will hold a continued place for itself on the market. We install plants complete, designed by our own expert engineers to meet your local conditions and turn out a uniform grade of Hydrated Lime of the highest standard, and with the greatest economy in cost of production. The Kritzer Continuous Hydrator, and the accessories installed with it, are the recognized standards in this line.



KRITZER CONTINUOUS PROCESS

**THE KRITZER COMPANY** Chicago, Ill.

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Henry Falja and D. B. Butler. Price \$1.20 C
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Myron C. Falk. Price \$2.50 C
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Halbert P. Gillette. Price \$5.00. C
- Concrete Construction  
H. P. Gillette and C. S. Hill. Price \$5.00 C
- Cement Workers' and Plasterers' Ready Reference  
H. G. Richey. Price \$1.50. C
- Reinforced Concrete  
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- Concrete  
Edward Godfrey. Price \$2.50. C
- Reinforced Concrete  
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Louis C. Sabin. Price \$5.00. C
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Homer A. Reid. Price \$5.00. C
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F. D. Warren. Price \$2.50. C
- Popular Handbook for Cement and Concrete Users  
Myron H. Lewis & A. H. Chandler. Price \$2.50. C
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Richards & North. Price \$1.50. V
- A Treatise on Cement Specifications  
Jerome Cochran. Price \$1.00. V
- Manual of Reinforced Concrete and Concrete Block Construction  
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J. J. Cosgrove. Price \$2.50. J J C
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- Cement Houses  
W. A. Radford. Price \$1.00.
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W. A. Radford. Price \$1.00.

**ROCK PRODUCTS AND BUILDING MATERIALS 537 S. DEARBORN STREET CHICAGO**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



# Another Webster "CYL-CONE" Sand and Gravel Washing Plant



Installed at Ludlow, Ky.

(Opposite Cincinnati)

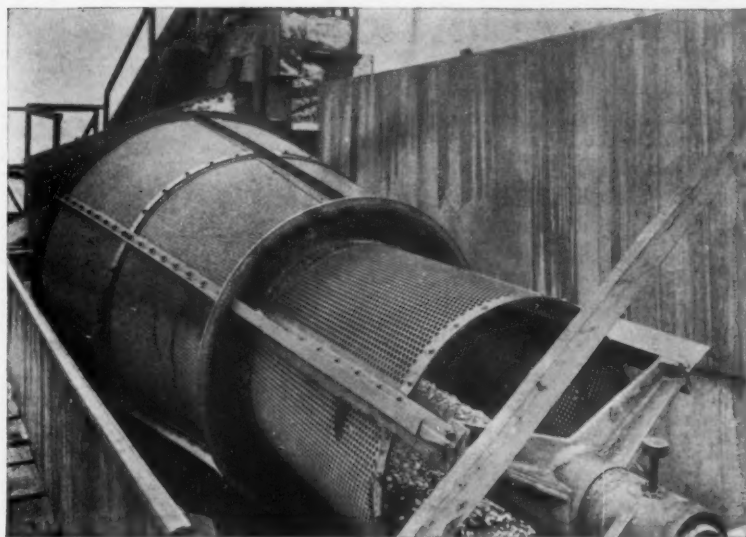
By and for the  
**Ideal Supplies Co.**

A long inclined Webster Belt Conveyor carries the materials up from the pit to the "Cyl-cone" Screen at the top of the plant.

The screen separates into four sizes, all washed clean.

Note the low height of the bin structure—That's **Cyl-cone economy** in **construction costs** and **operation expense**.

Are these items of importance to **YOU?**



**The Webster M'f'g  
Company**  
Tiffin, O.

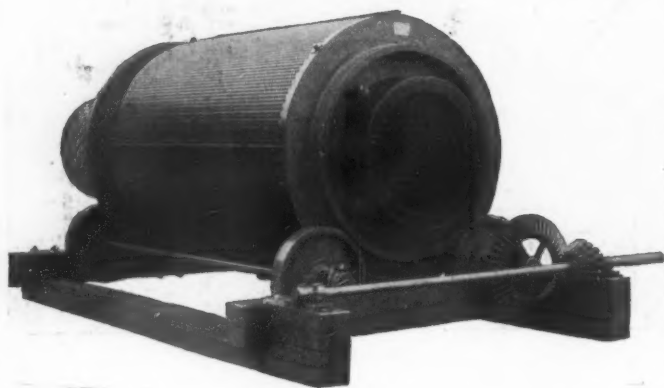
CHICAGO, McCormick Bldg.

NEW YORK, 90 West St.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

# JOHNSTON & CHAPMAN CO., INC., 2927 Carroll Avenue CHICAGO

ARE THE SOLE MAKERS OF THE



## Celebrated John O'Laughlin Screen,

the value of which has been demonstrated by many years of continuous service in **QUARRIES** of Limestone, Granite, Trap and other Rock. This machine is built to meet the requirements of Quarrymen, who want a durable practical machine for heavy work. Its construction renders it not only more effective in screening, but it is much shorter, stronger, easier-running, and less destructive of screen covers and bearings than the ordinary cylindrical screen. We will be glad to send to any address a circular explaining the merits of this screen.

WE ARE ALSO PERFORATORS OF ALL SHEET METALS, AND MAKERS OF FLAT, CYLINDRICAL AND CONICAL PERFORATED SCREEN PLATES FOR QUARRIES, MINES, CEMENT MILLS, REDUCTION WORKS, AND ALL INDUSTRIAL PURPOSES. PLEASE FAVOR US WITH YOUR INQUIRIES FOR PERFORATED SCREEN PLATES FOR ANY MACHINE, OR ANY PURPOSE.

*Remember the O'LAUGHLIN SCREENING MACHINE. It is a good one.*

**JOHNSTON & CHAPMAN CO.,** 2927 CARROLL AVENUE  
CHICAGO, ILLINOIS

## Perfect Lime Burning Economy

has resulted from the use of the

DUFF PATENT

### GAS PRODUCER INSTALLATION

This device is in successful and satisfactory operation in the following representative plants:

La Garde Lime & Stone Co., La Garde, Ala.  
Ohio & Western Lime Co., Gibsonburg, O.  
National Mortar & Supply Co., Gibsonburg, O.  
Knickerbocker Lime Co., Philadelphia, Pa.  
Dominion Lime Co., Lime Ridge, Quebec.

Installations now being made in other plants.

**DUFF PATENTS CO., Inc.**  
PITTSBURGH - - - PENNSYLVANIA

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

# Did You See that Car Load Order in the Last Issue?

ORDER No 7450

**D. J. KENNEDY COMPANY**  
**COAL, BRICK AND BUILDERS' SUPPLIES**  
 6555 FRANKFORD AVENUE  
 PITTSBURGH, PA. July 11, 1914.

Ceresit Waterproofing Co.,  
 Chicago, Ill.

PLEASE SHIP TO OURSELVES,  
 East Liberty, Pa.,  
 via P.R.R.

Carload of Ceresit as follows:-

50 - 10 Gal. Cans Ceresit Waterproofing Paste	
50 - 5 Gal. " " " "	
25 - 3 Gal. " " " "	
15 - 1 Gal. " " " "	
3,000 lbs.	in Half Barrels
21,000 lbs.	in Barrels

Please ship at once. ☐ RUSH ☐ NORM

AND CHARGE SAME TO OUR ACCOUNT

**D. J. KENNEDY COMPANY**

WHEN WRITING ABOUT THIS ORDER REFER TO ABOVE NUMBER  
 MAIL INVOICE, NOTING CAR AND ORDER NUMBER

*A. L. Fahn*

## Well, Here's Another One!



is recognized by Pittsburgh architects, engineers and contractors as a cement waterproofer that is absolutely permanent and dependable. Our Pittsburgh dealers, D. J. Kennedy Co., are reaping the benefits.

Are you cashing in on CERESIT, or are the orders from your territory coming direct to us? That is a question that is worth your while investigating.

If we have no dealer in your territory, we want *you*. Write for our 1914 Book of Evidence and dealers' proposition.

## Ceresit Waterproofing Company

924 Westminster Building, Chicago

FACTORIES: Chicago; Una, Germany; London; Paris; Vienna; Warsaw





Furniture Exhibition Co. Warehouse, North Pier, Chicago, Ill.  
1,300 Ft. Long, 120 Ft. Wide. Henry Ericsson, Contractor.

## MEDUSA GRAY PORTLAND CEMENT

Used Throughout for Foundations, Brickwork, Etc.

CELEBRATED FOR ITS UNIFORM COLOR AND STRENGTH  
GUARANTEED TO PASS AND SURPASS STANDARD SPECIFICATIONS

Over 100,000 barrels of Medusa Portland Cement  
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construction of breakwater at Cleveland, Ohio.

Write for free illustrated booklets and samples of

MEDUSA GRAY PORTLAND CEMENT  
MEDUSA WHITE PORTLAND CEMENT  
MEDUSA WATERPROOFING  
MEDUSA WATERPROOFED CEMENT  
(GRAY AND WHITE)

**Sandusky Portland Cement Co.**  
SANDUSKY, OHIO



## THE IMPROVED EQUIPMENT CO.

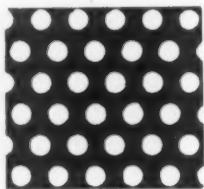
60 Wall Street, New York City

### COMBUSTION ENGINEERS

DESIGNERS AND BUILDERS OF

COMPLETE GAS PLANTS      GAS BENCHES  
LIME BURNING PLANTS      GAS PRODUCERS  
SPECIAL INDUSTRIAL FURNACES

"THE PRODUCT OF EXPERIENCE"  
**"MASTER"**  
The Reason Why—  
Oxy-Acetylene Welding and Cutting Apparatus should be a part  
of your quality equipment.  
BECAUSE: You save 75% welding your broken  
machinery parts. AVOID long, uncertain and expen-  
sive SHUT-DOWNS—AND because "MASTER" Apparatus is designed and made by men of  
practical experience AND SOLD at PRICE within Reason. Write for bulletin.  
**Engineering Sales Corporation, Railway Exchange Bldg., Chicago**



## "HENDRICK" PERFORATED STEEL SCREENS AND ELEVATOR BUCKETS

STAND THE TEST  
Let us figure on your requirements.

**HENDRICK MFG. CO.**  
New York Office, 30 Church St.      CARBONDALE, PA.

# DIRECT HEAT DRYERS

FOR

**Bank Sand, Glass Sand,  
Rock, Clay, Coal, Etc.**

All Mineral, Animal and Vegetable Matter

We have equipped the largest plants  
in existence and our dryers are oper-  
ating in all parts of the world. Write  
for list of installations and catalogue  
—S. C.—

## American Process Co.

68 William St., NEW YORK CITY

## BACON & FARREL ORE & ROCK CRUSHING & WORLD KNOWN ROLLS-CRUSHERS

EARLE C. BACON, ENGINEER  
HAYMEYER BUILDING, NEW YORK



## WORRELL'S ROTARY DRIERS

(First Efficient Rotary Fire Driers Built)

DIRECT OR INDIRECT HEAT,  
FOR SAND, CLAY, CRUSHED ROCK, GRAIN  
and other granular or fibrous matter. High Efficiency, Durability and Simplicity.

IMPORTANT: In sending for prices and printed matter state your  
required hourly capacity,  
approximate % moisture in your product, etc. **S. E. WORRELL**  
or mail pound sample in tin or glass.

Established 1879

209 Center St.

HANNIBAL, MO

## Farnam "Cheshire" Lime Co.

OF CHESHIRE, MASS.

MANUFACTURERS OF THE

### Celebrated Cheshire "Finishing" Lime

Well known throughout New York and the Eastern States as the finest  
finishing lime manufactured. The special feature of this lime is its quick  
and even slacking, thus preventing any cracking or checking when put  
on the wall. It is the best lime used in the country today for all

### HIGH GRADE FINISHING WORK

Selling Department, 39 Cortlandt St., N.Y., C. J. CURTIN, Pres't.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

# Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIV.

CHICAGO, JULY 22, 1914.

Number 6

PUBLISHED SEMI-MONTHLY.

DEVOTED TO

Quarry Products, Cement, Lime, Plaster, Sand and Gravel, Clay Products and Building Specialties—Fireproof Building and Road Construction.

THE FRANCIS PUBLISHING COMPANY.

EDGAR H. DEFEBAGH, Prest.

Seventh Floor, Ellsworth Bldg., 537 So. Dearborn St., Chicago, Ill., U. S. A.

Telephone: Harrison 8086, 8087 and 8088.

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Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.

Every reader is invited to make the office of Rock Products and Building Materials his headquarters while in Chicago.

Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions.....\$1.00

In all other Countries in the Postal Union.....\$1.50

Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option

Advertising rates furnished on application.

Published on the 7th and 22nd of each month.

Entered as second-class matter July 2nd, 1907, at the Postoffice at Chicago, Illinois, under act of March 3rd, 1879.

Copyright, 1914, by E. H. Defebaugh.

Human equation of the building mechanic costs more than good materials and intelligent management.

Everybody gets a summer vacation except the dealer in builders' supplies; and he works overtime every hot day.

Who ever heard of a crusher man that made an item of cost of the rock as nature made it in his quarry? Well, it's a good time to begin now.

In these busy days the dealer has his best chance to compare the cost of teams with auto trucks for delivering the materials of construction.

A practical working standard specification for lime seems to be like Sandy MacPherson's flea that "wouldna bear a finger on him because he wasna there."

Lime as a disinfectant and germicide has never been worked, probably because it is too cheap to be used for such an important purpose. But there is none better.

Building operations must be conducted upon a practical cash basis for the dealer to come out even. The plainer this can be made to the consumer, the better for all concerned.

Don't make cement plasters exposed to the weather too rich in cement, or shrinkage checks are sure to ensue. Limestone screenings mixed three or even four to one of cement will give better results than a richer mixture. The simpler the formula the better will be the result.

The great and ever growing housing problem is right in the grasp of the Portland cement industry to move greater tonnage than the mills will turn out this year. While it represents a big undertaking, it is entirely feasible and the people will pay for it.

The next thing in order is for Congress to adjourn. Congressmen could do no worse if they kept on working until Christmas. Perhaps the business brains of the country could clean house a bit and stir up some activity if those fool tinkers would only quit.

Fire clay flue liners have prevented many a small fire where the rickety brick chimney used to provide the report "defective flue." Probably no other of the newly improved materials has paid so well in practical results, as well as in the insurance reports.

There is no doubt that prepared roofing material put up in rolls and sold by every dealer in building materials will turn all the water in the near future. No branch of the material business is growing faster, and the good ones are giving high satisfaction, which means more business.

Business men have got to take a hand in politics if they are ever to hope for that recognition which is indispensable to the present safety and future growth of industrial enterprises. Incapable lawyers, who now do the law making, are not able to build up our important institutions.

The dustless concrete floor has never been satisfactorily produced. Many times it happens so, but just how to make it happen every time is what the user wants. Beyond a doubt there will be many square miles of floor laid when this little point is taken care of. Perhaps the trouble is all with the top dressing.

Organized material dealers in co-operation with organized producers is the only method of handling the heavy construction materials so as to stop the leaks and unexpected costs of a necessarily widely scattered business. Too bad that the consumer has to pay for all such losses, when it could be so easily conserved.

When one considers that fully 80 per cent of the mileage of American railroads were constructed 35 years ago, when the average loaded car weighed 30,000 pounds, and the maximum load was figured at 50,000 pounds, and all the culverts and bridges were built upon such basis, it is easy to see why the cost of maintenance runs up in these days of 60,000 pounds average and 150,000 pounds maximum loads. Overloading is simply playing havoc with the roadbeds, and it will keep on getting worse and worse with time and wear. The physical conditions of the roadbeds are not worth the mortgaged value, and it will take a big lot of heavy construction work for several years to bring them up to the requirements of modern traffic. The limitations of safety and economy have been passed long ago, and there would doubtless be much smaller deficits if present revenues were put into roadbed improvements of a permanent character instead of supporting expensive political lobbies to get the rates raised while they keep on paying for the breakage, wreckage and damage incident to operating overloaded equipment.



# WITH YOU and ME

Thomas E. Watkins, secretary-treasurer of the People's Lumber and Supply Co., Mt. Airy, Md., is spending the summer months in Europe.

The Dayton Builders' Supply Co., of Dayton, Ohio, is completing the arrangement of its new yard. This company suffered quite heavily during the spring flood of 1913.

A. E. Livingston, sales manager for the Louisville Builders' Supply Co., was married recently to Miss Wilhelmina Long, of Louisville, and took a two-weeks' honeymoon trip to the East, returning via Chicago.

Two of the Memphis, Tenn., retailers took advantage of the early July weather and left town on vacation jaunts. W. W. Fischer, of the Fischer Lime & Cement Co., and L. J. Moss, of the Tri-State Builders' Supply Co., are the vacationists.

James C. Adams, manager of the building material department of the United Fuel and Supply Co., of Detroit, is spending a few days in Chicago. "Jim" says that business in Detroit is rushing and his company is enjoying a splendid summer's activity.

Rawling & Harnischfeger Co., Milwaukee, Wis., has issued bulletin 301-A, entitled "The Application of the Electric Hoist." A number of views are shown wherein the hoist is utilized for various purposes such as loading cars, handling pipe, plates, boxes, etc.

Joseph T. Ryerson & Son have entered the St. Louis market by taking over the plant, merchandise, equipment and good will of the W. G. Hagar Iron Co. A modern warehouse and equipment for cutting and handling reinforcing bars and similar materials has been completed.

Fred Paulson, traffic manager of the Lehigh Portland Cement Co., together with L. G. Dauback, his assistant, are spending a few weeks at Mr. Paulson's summer home at Bay View, Mich. Mr. Paulson's family has been there since June and will remain throughout the summer period.

In the reunion program of the Jewett family of America, which recently met at Buffalo, the name of George A. Jewett, building material dealer of Des Moines, Iowa, appears quite prominently. Mr. Jewett is president of the organization, which is composed of the Jewetts of the United States.

Wallace P. Whitney has resigned as vice-president and manager of the Danville Brick Company of Danville, Ill., after serving six years in that capacity. He is succeeded by Frank W. Wood of Indianapolis, who for several years has been connected with the Adams Brick Company of that city.

The Acme Pressed Brick Co., of Forth Worth, will make a shipment of 35 cars of brick in one train from the company's plant to Hot Springs, Ark., on August 1. Each car will contain 8,000 bricks, the total number in the shipment to be 240,000. The material will be used in the construction of a new high school building in Hot Springs.

L. M. Rice, president of the Central Paint & Roofing Co., has just returned to Louisville, Ky., from another trip to western Kentucky. He reports that he found business very active in Owensboro and Henderson and sold several fair bills of roofings and other materials. Trade has opened up nicely with him during the past few weeks and he is carrying larger stocks than for some time past.

"Ben." W. McCausland and Oliver F. Slim, of the Cleveland office of the United States Gypsum Co., spent a few days during the week of July 5 in Chicago. "Ben." demonstrated to old and new hand-shaking friends that he still has muscular strength in his right arm, while Oliver's talk on fireproofing convinced the same friends that he has conducted a little research work along this line.

Mr. Clifford W. Lyon, research engineer of the Universal Portland Cement Co., accompanied by his chief chemist, Mr. R. H. Kempster, has been making extensive tests of the "Douglas Dust-Collecting System," with a view of installing these machines in the various Universal plants. The efficiency tests made by Messrs. Lyons and Kempster are said to have shown a saving of 95 per cent.

The Chicago Pneumatic Tool Co., Fisher building, Chicago, Ill., has issued bulletin 34-C, second edition, on the Chicago Pneumatic Gasoline and Fuel Oil Engine Driven Compressors, which are finding an increasing range of application among contractors and others requiring small unit compressor outfits. The pamphlet contains 16 pages and is amply illustrated with reproductions of the company's various classes and types of compressors.

The Cement Products Exhibition Co., 208 South La Salle street, Chicago, Ill., under whose auspices the annual cement shows are held, has issued literature containing rules and regulations, diagram of floor space, applications for space to the eighth Chicago cement show to be held at the Coliseum, Feb. 10-17, 1915, besides other matters of an instructive nature. The next Chicago show bids fair to be the greatest yet held and applications for space are coming in at a rapid rate.

L. G. Bradley, secretary and general manager of the Duluth Implement Manufacturing Co., of Duluth, Minn., reports rapid progress in the perfection of their new "Batch" hydrator. It is further stated that this patent hydrator will be used in their patent process plaster plant and will be "up to the minute" in every respect. This machine will be placed on the market next September. Further information regarding same will be cheerfully furnished by the above company.

The office and mill employees of the Eastern plant of the Lehigh Portland Cement Co., at Allentown, Pa., held their annual picnic and clambake at Neffsville park on Saturday, June 27. The party left Allentown on a special car at 11:30 a. m. There were about 200 people present at the bake. A. Y. Gowen, vice-president of the company, and a number of retail dealers from Philadelphia and Baltimore were also present. The Allentown band played during the afternoon.

F. H. Johnston, prominent supply dealer of New Britain, Conn., was the delegate of the New Britain Chamber of Commerce to the Sixth International Congress of Chambers of Commerce in Paris, which met in the French capital the middle of June. The American delegation comprised delegates from many of the principal cities of the American continent, the party all meeting at Boston and sailing on the St. Cunard steamer. After the adjournment of the Paris congress, Mr. and Mrs. Johnston took an extended sight-seeing trip of several weeks' duration.

C. W. Filer of the National Plaster Board Co., Cleveland, Ohio, visited the office of ROCK PRODUCTS AND BUILDING MATERIALS in the company of A. A. Fabritz of the Consumers Co., of Chicago, on July 8. Mr. Filer declared that business in the building material line, if figured by the amount of business his company is receiving, is rapidly improving. He said: "We are taking large orders every day and if the improvement in conditions keeps on we will have to materially increase our plant in the very near future. As it is, we have been adding to our equipment and to date our output of 'National' plaster board is greater than it has ever been." He further stated that retailers in Eastern states are looking forward to a good fall business.

The fourth annual outing and picnic of the Builders' and Traders' Exchange of Detroit was the feature of Tuesday, June 16. A boat carried the members and their families from Detroit to Bois Blanc Island. On board, an orchestra furnished music, peanuts were generously distributed to the crowd and a guessing contest for elegant prizes, put on by the United Fuel & Supply Co., kept every one on the move and interested. Handsome prizes were given by this company to the ladies, boys and girls, and practical prizes were given to the men. As a reward for the best guesses as to the number of barrels of cement sold by the United Fuel & Supply Co. during the month of May, 1914, 50 barrels of cement were given, as follows: First prize, 25 barrels; second prize, 15 barrels; third prize, 10 barrels.

## Scheduled Meetings and Shows.

- Aug. 4.—Maryland-Delaware-Washington, D. C. Dealers will meet to organize builders' supply dealers' association at Emerson House, Baltimore, Md.
- Aug. 7, 8.—Ohio Builders' Supply Association. Mid-summer meeting, Breakers' Hotel, Cedar Point, Ohio.
- Nov. 9-14.—American Highway Association. Fourth American Road Congress, Atlanta, Ga.
- Dec. 14-17.—American Road Builders' Association. Annual convention, Chicago.
- Feb. 8, 9, 1915.—National Builders' Supply Association. Annual convention, Hotel Sherman, Chicago.
- Feb. 10-12, 1915.—Illinois Lumber and Builders' Supply Dealers' Association. Annual convention, Hotel Sherman, Chicago.
- Feb. 10-17, 1915.—Eighth Annual Chicago Cement Show. Coliseum, Chicago.



### The Mexick Mix-up.

The editor is partial to new and timely topics,  
I always try to please him so he won't forget my pay,  
That's why the subject matter of this poem is the tropics  
In the cactus covered country to the south of Monterey.  
I have the map before me, but I'm up against it awful,  
I've got to rhyme these greaser words but can't pronounce 'em right,  
Take Aguascalientes, Zatacecas—there's a maw-full—  
I understand exactly why the Villa villains fight.  
As far as I can figure out, the biblical allusion  
That man is born to trouble seems to fit the case at hand,  
For the Mexicana battlers thrive in gory, wild confusion,  
And that dying for their country stuff they think is fine and grand.  
Chihuahua, changed to Jonesburg, might relieve the situation,  
And with Guadalajara christened Villaville would never vex,  
Calling Piedras Negras Blackfeet would complete pacification,  
The language makes the trouble there, I'll bet a quarter—Mex.

### When Friend Wife Goes Away.

Of course you never would admit how debonair and gay  
You feel about this time of year when friend wife goes away;  
You take her to the station and with sadness in your eyes  
You tell her how you'll miss her, as you kiss her fond good-byes.  
Then, as the train pulls slowly out, a thought occurs to you  
Concerning certain giddy things you'll have a chance to do,  
Your saddened, sober countenance is transformed in a wink,  
And in your mind you swear you'll put dull care upon the blink.  
And what a gay, bohemian and giddy life you lead,  
For just about a week or two your chief desire is speed;  
The haunts you were so fond of in the ante-married days  
Are seen again—you frolic in a thousand different ways.  
You get your breakfast home of course, and do it just for fun,  
Besides it's mighty easy when you only cook for one;  
Night work is rather tiring, and you're apt to get up late,  
On which account the breakfast dishes usually wait.  
Oh, what's the use! You know just how your gladness peters out;  
And lonesome, gee! you'd rather be most anywhere about  
Than at the place you once called home before that fateful day  
Friend wife went to the country and you started to be gay.  
And then it strikes you forcibly that you are tired and sick,  
You need vacation tonic, and you need it mighty quick;  
Now frankly, just between us, isn't that about the way  
You feel about this time of year, when friend wife goes away.  
—Frank Adams Mitchell.

## Technical Society Activities

### From President A. N. Talbot's Address to the Members of the American Society of Testing Materials at the Recent Annual Meeting.

Since the formation of the society great advance has been made in our real knowledge of materials, very much of it being due to the activities of the society itself, and we are now where the value of the fruit of research is appreciated. As soon as the surface is scratched over the need of systematic investigation becomes apparent. Ultimate progress involves a searching, critical and thorough inquiry and investigation into the facts and principles relating to the subject. More and more as time goes on will the society need to avail itself of the fruits of research.

Fortunately for us, the agencies for gathering knowledge and for conducting research are many and varied, and their number and opportunities are increasing. First in time, and in the past perhaps first in opportunity, may be named the producer or manufacturer. Next to the producer may be mentioned the consumer, whose interests in research should be as large as, or larger than, the producer's, though neither of these agencies has always realized its investigational opportunities and responsibilities. The private laboratory of the consulting engineer, testing engineer, or chemist and the independent research institute constitute another agency. The various Government laboratories, the engineering experiment stations and the laboratories of engineering colleges and technological schools may be grouped together as still another agency. The list would not be complete without including an agency which has been especially productive in effective investigational work in the past few years, and which may be expected to render still more valuable service in the future—I refer to co-operative work by scientific and engineering societies and their committees in connection with producer, consumer, scientific laboratories and individuals.

#### Research by Producers.

There was a time when the knowledge of the properties of certain engineering materials emanated principally from the producer, or was even held by him as trade secrets. The manufacturer has special opportunities for learning the qualities of his output—in certain directions at least. He needs to know something of its properties, for during the initial stage of business he must develop his product, and generally he must work to develop its field of usefulness and applicability in order that his business may grow to proper proportions. Competition compels him to know about his product and perhaps about the product of his competitor. There was a tendency then to withhold information; the brand of the established house was held sufficient as a specification. Time has thrown purchase by brand into disuse except for small purchases. The brand of a cement or of boiler plate still has selling value, but the producer must contract to deliver an article which will comply with definite specifications. Buying by specification is considered to be of great advantage to the consumer, for it permits of intelligent competition and gives an agreed statement of what properties are wanted, and is it not therefore advantageous to the producer also?

Granting purchase by specification, knowledge of the properties of a material is of great importance to the producer. And the producer is in a position to learn about his product. He is on the job continually. His chemist and his testing engineer keep tab on the work, and these trained and experienced men are able and willing to conduct researches to learn more of the material and of its action under varied conditions of service. A large amount of valuable investigation has been carried on by the producer. May we not expect with proper recog-

nition of their work and with proper suggestion and co-operation that the fruits of the producer's research laboratories may multiply greatly in amount and in value to the public?

#### Research by Consumers.

The consumer is in a different position: he has to live with the material; he knows how it works, how it wears, whether it breaks, and what the disastrous consequences are. He comes to think he knows what qualities he wants in the material, and he may ask for these qualities. The producer may have to tell him that it is not commercially practicable to make such a material, or he may insist that the cost would be prohibitive. The consumer may find that it will be to his advantage or to the advantage of his client, the public, to use the better material even at an increased cost, as in the case of the rail which reduces the chance for accident and loss of life. The consumer has many opportunities to learn the peculiarities of a material or a product; and the intelligent systematic record and analysis of failures or defects, of service and durability, add greatly to our knowledge of the properties of materials and may be made to form an even more important source of information. The laboratories of the consumer have been of great assistance in determining properties and in formulating adequate requirements. But here again, with an increasing number of laboratories and with increased interest on the part of the consumers in the work of their laboratories, may we not expect, as the years go on, that the contributions to knowledge from these laboratories will increase many-fold?

The next group, the private research laboratories, may at times serve the producer and at other times the consumer, in which cases it may be classified with the producer's and the consumer's laboratories; or it may serve as an independent research laboratory to investigate and report independently upon a research problem which is of common interest. This agency is also increasing in usefulness, and we may expect its influence to grow with the years.

#### Government and College Laboratories.

Government and college laboratories occupy an independent position. They enjoy the very full confidence of the public, who feel that these laboratories are not connected with special interests and that research problems will be handled with judicial fairness and impartiality. These laboratories enjoy the further privilege of being able to devote time and money in researches into the principles of action and fundamental nature of materials, which are seemingly of remote applicability and do not appeal directly to the producer or consumer, but which finally, after a number of pieces of work have been completed and fitted together, may prove of intense practical value. The expansion of the Bureau of Standards in recent years is an instance of the growth of Government testing and presages something of future opportunities in investigations in engineering materials.

In the field of college laboratories there has been a development that may surprise those who have not kept informed. At least six engineering experiment stations have been organized in connection with the engineering departments of state universities. Research laboratories of similar purpose are connected with other engineering schools. Still other schools are doing investigational work in an informal way. From all these sources are coming contributions to engineering knowledge of great value in the form of bulletins and other papers.

(Continued on Page 35.)

# CEMENT

## Proportioning Aggregates for Concrete.\*

By ALBERT MOYER,  
Of the Vulcanite Portland Cement Co.

To arrive at a scientific and at the same time practical method by which to properly proportion the aggregates for Portland-cement concrete, we must examine the larger available aggregates and so graduate them in size of particles that the smallest percentage of voids results and, consequently, that less mortar is required to obtain maximum density and therefore maximum strength. The principal requisite is the making of a sufficiently dense and rich mortar to bind together pebbles or crushed stone by entirely filling the voids. The study of this subject must be more particularly directed towards the proportioning of sand, Portland cement and water. The grains of sand must be bound together and the voids between the grains entirely filled with Portland-cement paste. It is the proportioning of this paste that we must study in order to determine the amount of cement and water which shall be added to any particular available sand.

### Weight and Volume of Cement.

In figuring proportions, we must determine the amount of Portland-cement paste required to fill the voids in the sand. Experiments made by S. Warren Hartwell would indicate that 110 pounds of Portland cement mixed with 25 per cent of water are required to produce 1 cubic foot of paste. The cement must be measured by weight and not by volume, for it has been found that 110 pounds of Portland cement will occupy 1.12 cubic feet if measured loosely and dry, while if packed tightly it will occupy only 0.95 cubic feet. If 94 pounds of Portland cement is figured as 1 cubic foot, there is not enough cement in the concrete.

Therefore, in using a sand in which there is found to be 38 per cent of voids, the proportion would be 110 pounds of cement to  $2\frac{1}{2}$  cubic feet of sand, or 1 cubic foot of cement paste to  $2\frac{1}{2}$  cubic feet of sand. If it is necessary to use the bag (94 pounds) as the unit for measuring the cement, the proportions should be computed as follows:

$$94:110::38:x$$

from which  $x = 44$  per cent, which calls for a proportion of  $1:2\frac{1}{4}$ . Therefore, using the bag as a unit, the proportions will be 1 bag of cement (94 pounds) to  $2\frac{1}{4}$  cubic feet of sand. It is certainly impracticable to change the size and weight of the package, and it is convenient to use the package as a unit for measurement. Therefore, the actual percentage of voids in the sand should first be calculated and then arbitrarily increased by means of the above method.

### Proportioning the Mortar.

There are various methods of determining the amount of Portland-cement paste required to fill the voids in the sand, among which are: (1) the determination of the percentage of voids by the specific-gravity method, and (2) by the water test (that is, the volume of water required to fill the voids); (3) experiments to determine directly the required amount of paste by measuring the volumes of mortars of various proportions, and (4) making

up the mortars into briquettes and breaking them in 7 and 28 day periods.

[The descriptions of the specific-gravity and water methods, because so well known, are omitted here. The third method, while also previously described, is treated briefly because the discussions which follow are based, in part, thereon.]

### Experiments with Mortars of Various Proportions.

Pour 200 cc. of dry sand into a glass very slowly, tapping the bottom and sides so that it will settle in as dense a mass as possible. Then pour out the sand and determine its weight to a hundredth of an ounce. Measure out several more 200-cc. samples of sand, weighing each time as a check on the quantity of sand in each sample. Then determine the volumes of cement paste required to be mixed with the 200-cc. samples of sand to give the various proportions under investigation, and measure out the necessary amount of cement by weight,

TABLE 1—WEIGHT OF CEMENT REQUIRED FOR A GIVEN VOLUME OF CEMENT PASTE.

1 Cubic Foot of Paste Contains 110 Pounds of Cement; Therefore 100 c.c. of Paste Contains 6.22

Proportions of volume.	Ounces of cement paste, cc.	Volume of sand, cc.	Weight of cement required, oz.
1:1½	133	200	8.27
1:1¾	115	200	7.16
1:2	100	200	6.22
1:2¼	89	200	5.53
1:2½	80	200	4.97
1:2¾	73	200	4.55
1:3	66	200	4.11
1:3¼	62	200	3.86
1:3½	57	200	3.55

assuming the weight of cement to be 110 pounds per cubic foot. These data, for various proportions, are given in Table 1. The following proportions, by volume, of cement paste to sand are suggested for investigation:  $1:1\frac{1}{2}$ ,  $1:2$ ,  $1:2\frac{1}{4}$ ,  $1:2\frac{1}{2}$ ,  $1:2\frac{3}{4}$ , and  $1:3$ .

Mix each sample of cement with 25 per cent of water, then with a 200-cc. sample of sand, and tamp the resulting mortar into the graduated glass, a little at a time, with a flat-end stick. Note the volume occupied by the tamped mortar.

The object of this test is to ascertain what proportion with a given amount of sand will produce maximum density with a minimum amount of cement. Since the same amount of sand is used in each sample, it is evident that with too much cement the volume of the mortar will be increased. Therefore, in progression from the leanest to the richest mixture, that sample which first starts to increase the volume of the mortar is the one which contains the correct proportions for that particular sand.

### Test of Briquettes.

The reason for using 200 cc. of sand in the previous experiment is to obtain sufficient mortar to make three briquettes. By inverting the glass and jarring the top against a rigid surface, the mortar will be released, usually in a solid mass. Make up each sample of mortar into briquettes, store in a moist closet and break in seven days.

This strength test is a check upon the accuracy of the above tests for the proportions of cement to sand which will produce maximum density, maximum strength and maximum bonding. The results of the four tests should agree. If they do not, the tests should be made again. If there is still a considerable variation, wash the sand and retest.

### Comparison with Ottawa Sand and Value of Screenings.

It has been proposed in various specifications to test sand by comparison of its strength with that of standard Ottawa sand. This might cause the rejection of a good sand, for if the comparison is made with 1:3 mortar for each sand, the sand under investigation may not show proper strength in those proportions. The percentage of voids in each sand should be calculated, the mortars made up in the proportions necessary to fill the voids in each sand, and the briquettes tested for tensile or crushing strength. Each mortar will then be of maximum density for its respective sand, but different proportions are of necessity used. The comparison, therefore, should be made not on the basis of mortars of the same proportions, but on mortars of maximum density.

If screenings or quarry tailings passing through a  $\frac{1}{4}$ -inch mesh sieve are used in place of sand, their voids are determined in the same manner as those of sand, previously described. The tailings, however, should be of such size that not more than 20 per cent passes through a No. 50 sieve and not more than 10 per cent through a No. 100 sieve.

Trap-rock screenings make a very excellent substitute for sand; in fact, they will make a far tougher and stronger concrete than the best sand. Poor stone screenings, however, such as soft limestone, marble, sandstone, etc., do not make as good a mortar for concrete as does good sand.

### Proportioning the Larger Aggregates.

Let us now consider the proportioning of the larger aggregates, keeping in mind that the voids in these aggregates are to be filled with mortar as previously described. It is sometimes best to use two sizes of stone, a large size and a smaller size; the smaller size, however, should all be retained on a  $\frac{1}{4}$ -inch mesh sieve.

In order to ascertain the best mixture of the smaller and larger sizes of stone or pebbles, make a receptacle which will hold a little over 4 cubic feet (or use a 15-inch sewer pipe). Measure 3 cubic feet of the larger stone and 1 cubic foot of the smaller stone. Mix well together, place in the receptacle and note the space which it occupies. Empty the receptacle, measure 2 cubic feet of the larger stone and 2 cubic feet of the smaller stone, mix as before and mark the space occupied. Vary the proportions in this manner, always adhering to a total of 4 cubic feet. The mixture which occupies the least space in the receptacle will make the densest concrete.

The percentage of voids should then be determined either by test or by weighing the stone or gravel and referring to a table giving the percentage of voids for different weights of various kinds of aggregate.

The percentage of voids being known, the parts of stone required for various proportions of mortar to fill the voids can now be found.

### Conclusion.

It may reasonably be stated, therefore, that aggregates proportioned as above described produce a concrete which is denser and stronger than aggregates not so proportioned. Thus, with a given aggregate and an arbitrary specification of  $1:2:4$ , a weaker concrete might be obtained than if the aggregates were properly proportioned in accordance with the principles above described and the

\* Paper American Society for Testing Materials, June 30-July 3.



proper proportions proved to be, for example, 1:2½:4¾.

If these principles are kept constantly in view, no engineer, without previous knowledge of the aggregates that are going to be used, can conscientiously write a specification and arbitrarily specify 1:2:4, 1:3:6, or whatever his favorite formula may be.

#### DISCUSSION BY CLOYD M. CHAPMAN,

Engineer of Tests, Westinghouse, Church, Kerr & Co.

As a broad general proposition, it is probably true that the densest concrete is the strongest, and that the determination of voids in fine and coarse aggregate by the various methods given in the paper will assist in proportioning a concrete of maximum density. But in any given case the engineer is not dealing with broad general conditions. He is dealing with the particular materials available at or comparatively near the site of the proposed work. These materials may or may not be of an unusual character. Whatever method is employed for determining the proportions to be used in the concrete, it should be one which applies to all cases and to that particular one especially.

The author states that the proportion of cement to be added to a sand may be determined by the simple method of observing the combination of sand and cement which begins to expand the volume of the mixture. But sometimes this fails to work. We have tested a sand which gave the following volumes when mixed with various proportions of cement:

Proportions . . . .	1:2	1:2½	1:3	1:3½	1:4
Volume . . . . .	126	120	114	112	110

According to this, the 1:4 mixture ought to be rich enough, yet a 1:3 mixture gave tensile strengths as compared with Ottawa sand, as follows: 7 days, 47 per cent; 28 days, 50 per cent—hardly a suitable material for good concrete work.

The statement is made in the paper that not over 10 per cent of a tailings sand should pass a 100-mesh sieve. We have a record of a test of such a sand of which 18.8 per cent passed a 100-mesh sieve, yet it gave strengths as follows, compared with Ottawa sand (1:3) in tension: 3 days, 159 per cent; 7 days, 166 per cent; 28 days, 174 per cent. In compression the following strengths per square inch at 28 days were obtained: 1:2, 4,250 pounds; 1:2½, 3,500 pounds; 1:3, 3,000 pounds; 1:4, 2,750 pounds; 1:5, 2,000 pounds. That can hardly be called a poor sand, yet it would be rejected under such a specification. Another good sand had 21.7 per cent through a 100 mesh.

#### Utility of Tension Tests.

The author advocates the tension test of briquettes as one of the four most important tests to be used in determining the value of a sand. As an illustration of how far astray the tension test may lead one, two cases may be cited. One sand gave tensile strength as compared with Ottawa sand as follows: 3 days, 78.8 per cent; 7 days, 104 per cent; 28 days, 109 per cent; and in compression with 2-inch cubes, 28 days, the following: 1:2, 6,750 pounds; 1:2½, 5,750 pounds; 1:3, 5,250 pounds; 1:4, 3,750 pounds; 1:5, 2,500 pounds. The other sand gave tensile strength ratios at 3 days of 103 per cent; at 7 days of 104 per cent; at 28 days of 100 per cent; or, not materially less than the other sand. But in compression at 28 days it gave: 1:2, 3,875 pounds; 1:2½, 3,500 pounds; 1:3, 2,500 pounds; 1:4, 2,000 pounds; 1:5, 1,750 pounds. In other words, one sand was as strong in compression in a 1:4 mixture as the other was in a 1:2½ mixture, although only a few per cent stronger in tension.

The tension test is a risky guide in judging a material to be used in compression. We do not use it in the case of other structural materials which are used only in compression, and why stick

so doggedly to it in the case of mortar? How popular would a tension test for brick or hollow tile be among structural engineers?

A claim has been made by some that the percentage of water required to make normal consistency with the sand under test may be a reliable guide to its strength qualities—the more water required, the poorer the sand—but we have had a sand which required 33 per cent more water than did standard Ottawa with the same cement, yet the 1:3 tensile strength at 28 days was 196 per cent of that of Ottawa sand. The rule does not always work, and I fear the exceptions are so numerous as to cast a doubt on the value of the rule.

#### Relation of Volume of Cement to Voids.

The author also infers that the proper amount of cement to use with a sand to give maximum density and maximum strength is directly proportional to the volume of the voids. This would be true if the object of adding the cement were simply to fill the voids. With some sands it is not enough that the voids are filled with cement. Some sands having a relatively low percentage of voids make weaker mortar than others having relatively high percentages of voids. A certain cement having 40 per cent of voids, by the displacement method, shows a tensile strength of 115 per cent of that of Ottawa sand at 28 days, while another sample having but 35 per cent of voids shows a strength of only 86.4 per cent at the same age.

The object of adding cement to sand is usually to produce the desired strength. So many conditions affect the strength of the mixture that it is unsafe to conclude that if we know the amount of cement required to fill the voids in a given sand we can then decide what mix to use in concrete. The only safe way is to make up test pieces of a progressive series of mixtures of the materials to be used on the job, including the coarse aggregate, sand, cement, and the water, and test these specimens in compression.

The question the engineer on the job must answer is not "How much cement will fill the voids in the sand, and how much mortar must I add to stone to fill its voids?" but he must be able to answer most positively the question: "In what proportion must I mix this stone and this sand and this cement and water to produce a concrete which will have the strength required in the structure with a proper factor of safety?"

#### Limitation of Method Proposed.

With certain kinds of sand and stone, a clean coarse sand and crushed trap rock for instance, the method described by the author would probably give satisfactory results, but if it is depended upon as a universal rule, somebody very soon is liable to put in some very poor concrete.

I wish to compliment Mr. Moyer on the work he has done. The tests he advocates give satisfactory results in a majority of cases. These tests have been among those applied to concrete aggregates in the laboratory of Westinghouse, Church, Kerr & Company for several years. All sands tested are subjected to these tests except that instead of making briquettes for tension tests of the mortar resulting from the "increase in volume" test, we make 2-inch cubes and crush them at the end of 7 and 28 days. But we have tested so many sands which did not follow the general rule that it seems unsafe to depend upon any or all of them when final decision is made.

#### DISCUSSION BY W. M. KINNEY,

Engineer of Inspection Bureau, Universal Portland Cement Company.

Mr. Moyer's paper presents some very interesting material on a subject which has long received too little attention from engineers and architects specifying concrete for various uses. When we stop to consider that there is frequently a range of 500 pounds either way from the commonly ac-

cepted standard of 2,000 pounds per square inch in compression, depending upon whether one or another of the local materials available is used, and that an equally great improvement in the strength may be made by varying the ratio of fine and coarse aggregate, while still maintaining the same ratio of cement to volume of concrete produced, it is surprising to note that very little attention has been given to the subject of scientific proportioning of concrete to produce the greatest strength for the least outlay of money. There is no doubt that a more thorough study of the subject would lead to the production of far more suitable aggregate for concrete, placing, as it would, an actual demand on the producer which would have to be met.

It is not uncommon to find, when the specifications distinctly state that the fine aggregate shall pass a ¼-inch mesh and be graded from fine to coarse, and that the coarse aggregate shall be well graded material from ¾ to 1½-inch and the proportions based on these sizes, that the producer will be screening over a ¾, ¾ and 1½-inch circular screen. It is common practice to accept the apparent inevitable, using the material passing the ¾-inch screen as fine aggregate, the ¾ to ¾-inch material for coarse aggregate for reinforced concrete work, and the ¾ to 1½-inch material for coarse aggregate for mass work. Such conditions arise largely through ignorance of what is desired rather than through any objection on the part of the producer to giving the right kind of material. To him sand is sand, gravel is gravel and crushed stone is crushed stone. It is up to the user to know what he wants and get it.

#### Density Proportioning and Percentage of Water.

There is no doubt that density proportioning is the most practical and definite method yet evolved. While it is largely a cut and try method and should be checked by cylinder compression tests there are fewer possibilities of error and the results are not dependent on the use of delicate apparatus. The value of this test in proportioning, however, is not as great as would be indicated by Mr. Moyer's experiments, inasmuch as usually a certain strength concrete is desired and this strength is governed largely by the ratio of the cement to the fine aggregate. The density test, then, has its value in the determination of the proper amount of coarse aggregate to use with a given mortar. This does not mean, of course, that the determination of mortar density is not of great value in obtaining the relative merits of two given sands, as it might develop in an analysis of this kind that one sand would work better than another in lean mixtures and poorer in rich mixtures.

It is questionable whether any great value can be attached to results where a fixed percentage of water is used in all proportions from 1:1½ to 1:3. The percentages of water absorbed by the sand would be double in the extreme case and correspondingly large in the intermediate cases. The absorption would have to be determined and additions made for the mortar containing the larger amount of sand. It is also questionable whether a fixed percentage of water could be used because of the known variation in amount of water required by different brands of cement to produce the same plasticity. It also seems hardly conceivable that 25 per cent water will give anything but a very dry mortar, which would be practically impossible to mix with sand and compact thoroughly. It is common to use 24 per cent for neat briquettes, which are quite stiff and in 1:3 sand mixtures it is not uncommon to use 12 per cent of the total weight of 48 per cent of the weight of the cement.

#### Material for Briquettes and Value of Screenings.

The making of briquettes of the material left from these density tests is hardly to be recommended. Variations equally as great as those shown could have resulted from the fact that one sample would have dried out more than another



during the density test. New samples should be made up in every case. It seems that the argument in this paper against the specifications requiring a mortar strength equal to that of Ottawa sand is not a good one, as the voids in Ottawa sand, being a sand of practically uniform size, are 5 to 10 per cent greater than those of the ordinary sand. The ordinary sand, therefore, has a distinct advantage in percentage of voids and uniform grading. No good sand should fail to equal the strength of Ottawa sand in a 1:3 mixture.

The broad statement made by Mr. Moyer that trap rock screenings make a stronger and tougher concrete than the best sand is an unfortunate one, inasmuch as this will be accepted by many as covering all kinds of screenings from all kinds of trap rock. While it is true that a great many stone screenings give excellent results in laboratory tests, there are few of them which produce good results

### Road Conference Proceedings Printed.

The proceedings of the National Conference on Concrete Road Building, which was held at Chicago Feb. 12, 13 and 14 of this year, has been published in book form under the direction of the committee on resolutions.

The book, which comprises 210 pages, has been very well compiled and edited by Secretary J. P. Beck. In addition to various addresses delivered at the recent conference, there appears the reports of committees, a complete roll of participants and the proposed standard specifications of the American Concrete Institute for one-course concrete highways, one-course concrete street pavements and two-course concrete street pavements. Wherever necessary, technical points have been clearly illustrated.

The book has been set in plain, readable type and

ing in use by the cement plants of this country. It is well known that the cement industry has been accused of gross carelessness in the matter of cost accounting and it has been claimed that the large number of receiverships in this industry during the past seven years has largely been due to the fact that many companies did not know what their true costs were.

The Association of American Portland Cement Manufacturers through a special committee has recently arrived at a standard form for cost keeping which aims to include all the items entering into costs. It is thought that if manufacturers should use and study this form they would not be so ready to cut prices below the point of actual cost and the industry would gain greatly financially.

The Security company has adopted the association form, but it is believed that only a small minority of the manufacturers have thus far given this matter of arriving at a total cost the study and care which its importance deserves.

### Concrete in New Zealand.

(From our travelling correspondent.)

Auckland, New Zealand, June 15.—During the last few years much progress has been made in the adoption of concrete as a construction material in New Zealand. At the beginning of the year 1912 there were 17 cement and lime manufacturing plants in the Dominion that gave employment to 456 men, and the value of their output for the previous year was \$923,430. Practically all of this material was used in New Zealand. There is a tendency here to concentrate the industry, as is shown by the fact that in 1906 there were 20 cement and lime works in the country giving employment to 280 men. The number of plants is being gradually decreased, but the working force is constantly growing. Most of the mills are equipped with modern machinery and are operated on the highest approved lines. The aggregate approximate value of the plants including machinery is \$1,278,170. They have a total horsepower of 3,586. The total sum paid in wages for these industries in 1911, which is the latest available statistics, was \$267,970. The total value of the materials used was approximately \$450,000.

It is in the construction of viaducts, bridges and culverts that concrete is coming into quite general use throughout the Dominion. In Auckland, one of the most attractive of the several municipal public works is a long viaduct that spans a deep and wide depression which separates two residence portions of the population center. The words "population center" are used advisedly, inasmuch as it is commonly known that Auckland is made up of one main business center and closely connected by many suburbs, each having its own municipal government and possessing of itself a smaller business center. In the construction of the Auckland viaduct, as well as other concrete creations here and in other cities, a beautiful design of architecture was followed.

It is only of late years that concrete came into use in New Zealand in the building of highway and railroad culverts. There promises to be a great increase in these works during the next several years. The government is now considering plans for taking over the highway systems of the country and is planning to inaugurate a widespread movement for the improvement of the different roads.

The types of concrete dwelling houses and public buildings in New Zealand are not only of attractive appearance, but they are specially adapted to the climate and for the comfort of their occupants. From an architectural standpoint the buildings in the cities and towns of New Zealand com-

(Continued on Page 35.)



BEAUTY OF ARCHITECTURAL DESIGN WAS USED IN CONNECTION WITH CONSTRUCTION OF THIS CONCRETE VIADUCT AT AUCKLAND, NEW ZEALAND.

in the field. This is due to the excessive amount of dust usually present in material of this kind, which has little or no effect under the best conditions existing in the laboratory, but is a serious detriment in the field. It is a safe precaution to require at least double the amount of mixing for stone screenings as for sand. It is better still to pass the screenings over a  $\frac{1}{8}$ -in. screen and use the coarser particles to add to the sand, as sand is usually deficient in the larger particles.

It is well in passing to say a word of caution in connection with the interpretation of tensile tests on mortar. It has been quite conclusively proved that there is no direct relation between the strength of a given mortar in tension and its strength in compression. The ratio varies between wide limits and inasmuch as concrete is used in compression practically exclusively, we should tend toward the compression rather than the tension test. For mortars, a 3x6-in. cylinder has been found convenient and for concrete the 6x12-in. cylinder.

While Mr. Moyer's paper brings out some new and interesting ideas, it is doubtful whether the method of proportioning suggested is a good one. The final proportions determined upon depend upon the void results of the coarse aggregates. This test is a very inaccurate one, involving several variables. It seems to me far preferable to arbitrarily select for a given sand of known value a cement-sand ratio and proportion the amount of coarse aggregate to give the maximum density with this particular mortar.

printed on good quality paper. It is a document which will be of much interest to road builders and persons interested in this topic.

### Security Happenings.

The second quarterly meeting of the Security Cement and Lime Co. sales and operating forces was held at its offices the middle of June. There were present M. W. Allen, J. K. Barbour, E. L. Beckenbaugh, Charles Catlett, J. S. J. Clark, L. A. Cover, W. D. Garvin, H. E. Goddard, G. V. Graham, R. L. Hamaker, J. A. Mason, E. K. Miller, Jno. J. Porter, H. S. Rayner, P. C. Somerville and K. E. Young.

All present received with considerable pride the announcement of General Sales Manager J. K. Barbour: "This company has just been awarded contract for approximately 50,000 barrels of cement required by the District of Columbia for their fiscal year ending June, 1915. Each barrel of cement was required to meet the rigid specifications for Portland cement of the U. S. Government."

General Manager Jno. J. Porter stated that both the lime and cement plants are now in the highest state of efficiency and prepared to take immediate care of any rational demand that may be made upon them.

The auditing department of the Security Cement and Lime Co., Hagerstown, Md., has been making an extensive investigation of methods of cost-keep-

# LIME

## Progress of Standard Specification Committee.

At the recent meeting of the American Society for Testing Materials held at Atlantic City, the committee on "Standard Specifications for Lime" submitted a tentative report modeled after the report of the same committee at the convention one year ago and embodying some of the suggestions brought out in the discussion upon the subject of standard specifications at the convention of the National Lime Manufacturers' Association last winter.

The extreme difficulty of arriving at a standard specification for lime, which will be at once intelligent, practical and operative and at the same time fair and equitable to the producers and consumers of lime, makes the problem before this committee one of no small proportion. The presentation of the committee report has always been the signal for arousing a great deal of discussion and no little opposition, for the reason that should the report be fulsome enough to cover the ground that would naturally be desired in such a document, it is sure to contain contradictions or at least present opportunities for several radically different interpretations.

Henry S. Spaekman, chairman of the committee of the American Society for Testing Materials, is also chairman of a parallel committee of the National Lime Manufacturers' Association, and for this reason is fully qualified and equipped with all of the necessary data extant upon the subject of the production, handling and final disposition, or use of all the lime manufactured in the United States. The members of the committee from both societies co-operating in this way are without doubt drawn from the best informed, broad-gauged men having any considerable knowledge of lime. The first report of the committee of American Society for Testing Materials one year ago was referred back to the committee for further study and deliberation, and the entire subject has been gone over and compared with the parallel work of the committee of the other society, and with the present report on "Standard Specifications for Lime" the chairman requested that the report be published in the proceedings of the American society for information for one year, and this was accordingly done.

The committee reaffirms the stand taken last year, that no test specifications could be recommended for the strength of lime mortar similar to those used in the case of Portland cement, principally for the reason that they would not be practical or useful as such. The report published in the proceedings for information in this way, will provide the means for the entire membership of the society to give the matter of the "Standard Specifications for Lime" study and thought, so as to on a future occasion be in a position to concentrate the entire force of the society upon the important subject of the standardization of lime.

## Strength of Lime Mortar.

By Warren E. Emley, and S. E. Young of the U. S. Bureau of Standards.

This is the title of a paper read before the recent meeting of the American Society for Testing Materials, exhibiting one of the suggestions brought out with regard to its practical working standardization of lime. Mr. Emley, one of the authors of

the paper, is a member of the committee on "Standard Specifications for Lime" of the American society and also a member of the same committee of the National Lime Manufacturers' Association. He has been active in all of the work of both committees. He has always favored the comparison of compressive tests of lime mortar as the path by which to standardize commercial limes and dealing with the tensile sheering and transverse strength of lime mortar to ascertain how their values are affected by the numerous variables met with in practice, such as chemical composition of the lime, kind and amount of sand, size and shape of test specimen, conditions under which the test specimen is stored, the effect of added materials, etc.

The size and shape of a specimen of lime mortar are important factors influencing its strength, because the setting of the mortar depends upon the action of the carbon dioxide of the air. The size and shape are measures of the distance which this gas will have to penetrate in order to attack the interior of the mass. Another factor which influences the strength of lime mortar is the sand which it contains—both the amount of sand and the sizes of its grains. When a neat lime paste is permitted to set it shrinks so much as to cause pronounced cracking, and generally disintegration. The addition of a certain proportion of sand will overcome this tendency to crack and produce a mortar of measurable strength. Any further addition of sand will act merely as a diluent of the binding material and hence weaken the mortar.

The consistency of the mortar must also be considered. If the mortar is too dry it may be difficult to obtain a bond between the particles, and hence the specimen may be weak. If too wet it will be difficult to make the specimen homogeneous, and when the water evaporates high porosity may be expected. The amount of sand, as well as the amount of water, affects the consistency of the mortar. Hence the three component series, lime-sand-water, was investigated.

An important factor which must be considered is the condition of the atmosphere in which the specimens of lime mortar are stored. The setting of the mortar depends upon the chemical reaction between calcium hydroxide and carbon dioxide. Moreover, it is known that a certain amount of water is necessary to give the reaction measurable velocity, although too much water has the same effect as not enough water.

As a result of the studies it has been concluded that in order to use the strength of lime mortar as a basis of comparison every minute detail of manipulation used in measuring the strength must be specified. The extreme difficulty of maintaining uniform atmospheric conditions over long periods of time (which is absolutely essential if comparative results are to be obtained) practically precludes the specification of any definite figure for the desirable strength of a lime. It might be possible to eliminate the effect of the atmospheric conditions if some lime could be selected as a standard. Parallel series of specimens, one made of standard lime and the other of the lime to be tested,

both subjected to the same conditions throughout, would give a means of comparing the unknown lime with the standard. Unfortunately, all commercial limes vary more or less in their properties, owing to the variations in the stone itself and in the temperature at which it is burned.

The strength of a lime mortar depends mainly on the atmospheric conditions and on the size and shape of the specimens. It is impossible to duplicate these practical conditions in the laboratory, and the present knowledge of the subject does not warrant the establishment of any definite relation between the strength as measured in the laboratory and that which may be expected in practice.

The American Society for Testing Materials, at the Atlantic City meeting, elected the following officers to serve for the ensuing year: A. W. Gibbs, president; A. A. Stevenson, vice president; Prof. Edgar Marburg, secretary-treasurer; Robert Job, F. W. Kelley, A. Marston, and S. S. Voorhees, members of the executive committee. The official reports of the society showed that membership had increased 113 for the year, making a total of 1,687, composed of the principal active technical men of the nation. This society during its 17 years of existence has accomplished very important results with regard to the standardizing of the materials of construction, and for such service has received the widest international recognition and appreciation of both the producers and users of material.

## WILL SUPPLY LIME TO KANSAS CITY BOARD.

The Brockett Cement Co., of Kansas City, Mo., has received a contract to provide the Kansas City fire and water board with \$4,000 worth of lime. The company will receive 22½ cents per bushel.

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# CLAY PRODUCTS

## Prices Held Down By Band of Brick Thieves

**"Shoestring" Contractors, Indebtedness and System of Peonage Said to be Responsible for Short Counting of Material Shipped by Barges.**

New York, July 20.—Consumers, dealers and manufacturers of common brick entering the metropolitan district have long suspected that a system of brick stealing has been in part, at least, responsible for low prices that have featured the market for a year. The arrest on July 15 of two men believed to belong to an interlocking directorate of brick thieves operating throughout the district is the first of a series that detectives in the employ of various brick makers in the Building Material Exchange expect to make before long if action of Recorder McGovern of Hoboken does not have salutary effect upon others involved in the nefarious practice.

The fact that the system of operating is exactly similar throughout East Jersey, New York and Westchester gives rise to the belief that not only will the thieves be discouraged from operating, but that all manufacturers will be moved to take more care in counting cargoes and filling out bills of lading, for there is no doubt in the minds of the detectives investigating this matter for almost a year, that looseness of loading and discharging systems in this market has not only been the primary encouragement for illicit selling of "over-cargoes," but has been largely instrumental in keeping prices in the legitimate market low. Incidentally the hand of the "shoestring" contractor is discerned in the building material market in a new role.

When the brick market was in its hey day and common brick were selling here at \$7 a thousand and over, this thievery, say the detectives, thrived almost undetected. If the captain claimed under count and the dealer did the same and ditto the contractor or supervising architect, the demand for this commodity was great enough to stall any aggressive investigation. Naturally the ring imagined it had a safe system and the practice grew especially where the exigencies of trade encouraged manufacturers to be careless about filling in the quantity blank on their bills of lading or in leaving it entirely blank.

Practically all common brick coming into this market arrives on bottoms. These are in the form of brick barges carrying from 300,000 to 400,000 brick. They come from points between New York and Mechanicsville above Kingston on the Hudson and South river, Sayreville and Mattawan, New Jersey—points along the Long Island sound shore and from Connecticut when the market here is above \$7. The boats are in charge of a captain who sometimes owns his boat. Others are on salary while some are on commission for selling brick here.

For the most part the captains are employed by barge owning companies. Most captains are honest, at least until they get under the thumb of a "shoestring contractor," having an ally in a water-front bar-room, an installment clothing house, a green grocer or some other purveyor of commodities who first get the captain involved in hopeless debt and then turns him over for "satisfaction" to the "shoestring" contractor, who holds the debtors law over him and bids him to do his will which is to purloin a certain quantity of brick from each bargeload and sell to him. The teamster is also

involved in the same way; and so the manufacturer, the dealer and the consumer are all held up and bled whether the contractor gets the contract on a building operation or not.

When the brick market got down as low as \$5.25 a thousand for common Hudson and Raritan river brick at dock, wholesale, the real extent of this directorate of brick thievery came to be realized. William K. Hammond, the Greater New York Brick Co., Sayre & Fisher Co., and others have employed detectives at different times to try to run down the gang, but without much success. They have been able to get trace of some of the individuals, but the system as a whole has never been ferreted out to the extent of discovering how it is operated, at least, up to July 15, when John Annille, teamster of 913 New Road, North Bergen, N. J., was held in \$1,000 bail, and John LeMoine, captain of the barge Athens, Mattawan, N. J., in \$500 after their arrest on complaint of William Walser, of the North Hudson Supply Co. Recorder McGovern, of Hoboken, held the former on the charge of receiving stolen goods and the latter on one of grand larceny.

First intimation that the detectives were running down the scent of the ring leaders of the gang was early in the month when A. W. Tuthill, manager of the common brick department of the Sayre & Fisher Co., received word from Walser that he was being short counted. Authority was given him to go the limit in making an investigation. Detectives were put on the barges and the watch ended with the arrests.

But of primary importance was the discovery of how the system was worked and the enormity of the profits involved in the transaction. Incidentally it cast a strong light on the cause of the low prices prevailing for common brick here.

The practice was found to be most general among owners of outside boats. The system would be worked successfully whether the captain got a true manifest or not, for in the case cited, the Sayre & Fisher Co. had given the captain a true manifest before he left the Sayreville docks. In each case the captain proved to have been prompted to try the system through "necessity," which might be classed as a sort of peonage wherein the installment house agent, the bartender or the green grocer was the secondary factor for the true master, the "shoestring" supply man, and the peon was the captain, the teamster, or both, as in this case.

Brick coming into this market on a 450,000-capacity barge would be short counted. The captain would claim that the brick belonged to him as commission. He would ask \$5 a load of 1,500 for it. Usually he would be beaten down to \$3.50. The lot would subsequently be sold for prices ranging from \$9 to \$12.75, depending upon the quantity taken at once for it was expedient for the captain to make a quick sale so that he would not be compelled to clear for the yards again with some brick aboard still unloaded. The profits may be measured this way: On a 450,000 barge 9,000 or six loads would be "scrapped off." This would be sold for \$9 or more. The saving, even at this price to the contractor would be \$32.28. But if the contractor did not send his own trucks for the brick, the

"shoestring's" teamster would "peel" off a few hundred brick more from the load en route, usually at the "shoestring's" supply yard. This would be resold for velvet.

A. W. Tuthill, former president of the Building Material Exchange, who has been aggressively interested in rooting out this evil in the brick business for several years, said today that the scope of this practice is not dreamed of and, if vigorous prosecution of the men in custody does not stop the practice, not only the captains and the teamsters, but those who ultimately receive the brick will be apprehended. Speaking of the significance of the arrest as it affects the wholesale and manufacturing trade and the basic cause of the practice, Mr. Tuthill said:

"The Sayre & Fisher Co. has always taken a vigorous stand in the policy of honest count in the delivery of brick. Cargoes of building brick are tallied several times and checked up by an expert whose duty it is to see that the correct number of brick are on board and that the captain is given a true bill of lading with the quantity specifically stated. In no case is a captain sent away with the quantity aboard left blank.

"I venture to say that no firm in the brick business goes to greater trouble or expense than we have to establish and maintain for our customers an actual delivery of ten hundred brick when a thousand has been ordered.

"In the Hoboken case it is only fair to state that the captain was not one of our own men, but had charge of an outside barge, a chartered boat. Our customer had advised us of his suspicions some days before the arrests were made and the importance of the result of the subsequent investigation in the eyes of the magistrate speaks for itself by his action in holding the captain for grand larceny and the teamster on the more serious charge of receiving stolen goods in an aggregate bail of \$1,500."

The possible extent of this system of brick stealing may be measured by the fact that 1,200,000,000 common brick come into this market each year from the Hudson district alone. The figure would reach close to 2,000,000,000 if all the New Jersey, Connecticut and Long Island brick were included. Approximately sixty bargeloads, or 27,000,000 brick are moved in this district each week and if only one-thousandth part of this quantity is stolen and sold in a year, the profits alone would reach to something like \$12,000.

In a recent issue of ROCK PRODUCTS AND BUILDING MATERIALS we printed an item stating that the Des Moines Clay Co., Des Moines, Iowa, owners of the Acme Roofing Tile Plant, had secured the contract for the roofing tile for seven institute buildings being erected at Spokane by the state of Washington for the feeble minded. This statement was apparently unfounded, as Ludowici-Celadon Co., of Chicago, with factories at New Lexington, Ohio; Coffeyville, Kansas; Chicago Heights, Ill., and Ludowici, Ga., secured this contract for the furnishing of the roofing tile mentioned.

### STANDARD SPECIFICATIONS FOR BUILDING BRICK.

Professor A. V. Bleining, chairman of the committee on standard specifications for brick of the American Society for Testing Materials, presented a progress report at the meeting held at Atlantic

(Continued on Page 28.)



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# GYPSUM PRODUCTS

## Gypsum Industry Prosperous.

Value of Output in 1913 Reported by Geological Survey at \$6,774,822.

Gypsum rock was mined in the United States in 1913 to the extent of 2,599,508 short tons, an increase of 98,751 tons over the production of 1912, according to R. W. Stone, of the United States Geological Survey. The total value of gypsum and gypsum products produced in 1913 was \$6,774,822, compared with \$6,563,908 in 1912, an increase of \$210,914. Gypsum sold crude without calcining and used principally as an ingredient in Portland cement and paint and as land plaster amounted to 463,136 short tons, valued at \$697,066, which is a good increase over the business of 1912. About 85 per cent of the gypsum sold crude in 1913 was used for Portland cement at an average value of \$1.49 a ton. The quantity sold for this purpose is steadily increasing. The quantity of gypsum sold crude for land plaster has remained nearly stationary for four years, but the average price dropped in 1913 from \$2.02 to \$1.75 a ton.

There was an increase of 42,175 tons in the amount of calcined gypsum sold in 1913, yet the average price per ton was \$3.43—the same as in 1912. A total of 1,680,157 short tons was calcined for wall plaster, Keenes cement, plaster of Paris, etc. About 1,250,000 tons of this amount was used for mixed wall plaster, the so-called cement plaster and hard wall plasters of the building trade.

It is interesting to note that only 10 years ago (in 1903) did the output of the gypsum industry first pass the million-ton mark. The present production of over 2,500,000 tons, as shown by the figures, goes very largely into manufacture of Portland cement and of hard wall plasters. So long as concrete construction remains in public favor the demand of Portland cement manufacturers for gypsum as an ingredient assures the gypsum industry of good business at points near Portland cement mills, and the increasing sales of hard wall plaster speak well for its success.

A marked advance in the quantity and value of gypsum imports was made in 1913. There was an increase of 34,686 tons of unground gypsum over importations of 1912, the total importation of unground gypsum in 1913 being 447,383 short tons, valued at \$473,594.

These figures will later appear in a chapter of "Mineral Resources" on the gypsum industry in 1913. The chapter will also contain descriptions of the occurrences of gypsum in 22 states and in Alaska.

### LOUISVILLE WALL PLASTER BUSINESS ACTIVE.

Louisville, Ky., July 18.—The wall plaster business in Louisville has been fairly active during the past few weeks. A number of buildings are getting far enough advanced to receive the interior work, and a great many cottages and other small buildings are being erected. The small buildings in the aggregate really use more wall plaster than the larger ones, which frequently use other materials.

A large fire in the yards of the E. L. Hughes Lumber Co. started a blaze in the plant of the Kentucky Wall Plaster Company, which suffered damages of \$400. The fire was a fierce one at first, but was gotten under control after an hour's fight.

Will Selke, president of the Atlas Wall Plaster

Co., has returned from a week's pleasure trip to Indianapolis, Ind. Business at the company's local plant is entirely satisfactory just now, although most of the jobs are small ones.

### WILL INSTALL LARGE GYPSUM PLANT.

El Centro, Cal., July 18.—H. J. Winkelman, who formerly was connected with several of the largest gypsum concerns in the United States and also with the Mexican government for several years, has been engaged by the Imperial Valley Gypsum Co., El Centro, Cal., to install its gypsum mining plant at the mine. Mr. Winkelman took charge a few days ago, when he and W. Osborne Williams, vice president and general manager of the company, took a trip out to the mine and started a gang of men to work developing water.

After his visit to the plant, Mr. Winkelman declared that this was one of the greatest gypsum deposits in the world. The rock runs 99 per cent pure, and will make one of the finest plasters and cements known, he said.

W. Clement Martin, secretary of the company, recently stated that the Valley mine will be put in operation at once.

"We are finding it absolutely necessary to begin getting out ore," he said. "A great many concerns and individuals are asking for our products to build homes and business buildings.

"Mr. Williams, the general manager, has instructed Mr. Winkelman to rush things along as rapidly as possible. There is no doubt that we will be sending gypsum into El Centro by the end of the week."

### NEW GYPSUM PRODUCTS PUBLICATIONS.

In their attempt to further increase the use of "Sackett" plaster board, the advertising department of the United States Gypsum Co. have just completed two attractive and neatly printed circulars comparing the use of wood lath with "Sackett" plaster board.

One of these circulars shows a scene in an architect's office, with the architect and Mr. and Mrs. House Builder. The architect is in the attitude of advising his clients of the various materials to use and three lines at the top of the circular indicates that he is just on the point of saying, "There is no economy in wood lath walls." This is a four-page circular and the two central pages show the methods used in plastering over a wood lath wall, as well as a "Sackett" lath wall. It gives front and rear views, showing the amount of waste plaster and dangerous construction connected with the wood lath wall, as well as the economy in plaster and fireproofness connected with the use of "Sackett" plaster board. The rear page of this magnificent little folder shows an interior view of a large room and the method of constructing "Sackett" built walls and using gypsum wall plaster as a plastering material. Advice to home builders is given on this page in the words, "Discuss 'Sackett' with your architect."

Another publication shows a wood lath wall which has been burnt through and the burnt edges of wood lath. A fireman is presented in full uniform and holding his axe. Above the picture are these words, "There's no excuse for this." Another view on this circular is a photograph of a wooden residence immediately after a fire. The advertising department has successfully shown the devastating and

blighting effects of fire in this picture. Very cleverly have the words "'Sackett' would have prevented this" been printed over the picture.

The object of the United States Gypsum Co. in adding these new "Sackett" books to their present series is to link up a plan for the dealer to create better and bigger business for himself and incidentally for the manufacturers.

Any line, the sale of which is given so much co-operation as "Sackett" plaster board, is worth the consideration of every progressive building material dealer. The United States Gypsum Co. has demonstrated time and again the efficiency of its advertising department in co-operating through their sales department with the building material retailers of the country. Believing thoroughly in the distribution of plaster and plaster board by the building material dealer, this company is ready at all times to co-operate with him in every available manner.

### STANDARD SPECIFICATIONS FOR BRICK.

(Continued from Page 26.)

City, referring to the preliminary report of the committee presented one year ago, which was divided into two parts, one devoted to building brick and the other to paving brick, the committee did not feel that its information on building brick was sufficiently complete to enable it to present specifications for adoption by the society.

In the deliberations of the committee during the past year, a new classification in the case of building brick has been proposed, founded upon compressive strength and absorption. The feasibility of such a classification would necessitate a practical application throughout the country, and the committee is now collecting information from the principal brick producing centers upon the relation between compressive strength, cross bending strength, absorption and freezing. A sub-committee has been set to work to carry out this nation-wide campaign for first-hand information, and to obtain co-operation of the engineering laboratories of the various universities and technical schools. No less than 25 state universities and other technical schools have taken up the work with enthusiasm, and a study of accurate testing of brick is thereby being developed upon a very wide range of material. All of the reports and work of the co-operating engineering laboratories are being kept and recorded uniformly upon a blank which is furnished by the committee, so that the data when collected will be in the simplest form for the more perfect study and for the drawing of intelligent conclusions therefrom.

The simple testing of a sample brick for compression, and assuming relationships thereto for all of the other factors entering into the value of a building brick, as has been the tendency of the past, is being led by Professor Bleininger, and his exceptionally brilliant committee, into the broader plane of making the specification for the building brick have a more definite bearing upon the uses to which the brick is designed to serve. In other words, the comprehensive work undertaken by the committee, to draw standard specifications for brick and for the testing of brick, when completed will be the first really important document on the subject, because it is dealing with the subject of the building brick from every possible angle of approach, and it will therefore produce a specification which shall be useful as well as interesting.



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Hydrated  
**LIME**



ASK YOUR  
DEALER



**"SECURITY"**  
PORTLAND  
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Main Offices, Hagerstown, Md.



The HIGHEST GRADE  
Plaster Board made. Substitute  
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pervious to heat or cold. Fire  
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deadening. Does not buckle.  
Quick drying. Time saving.  
Size of board, 32"x36".

The "Giant" Plaster Board Co.  
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Liggett Bldg., St. Louis

THE  
**Standard  
Brands**

OF  
Portland Cement  
Lightest in Color  
Highest Tensile Strength  
ALWAYS UNIFORM



SALES OFFICE:  
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Always the same high  
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We make these  
bags in one-fifth  
barrel size cheap  
enough to use  
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enough to carry  
seventy-six lbs.  
cement to desti-  
nation. ASK  
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An Extra Heavy, Extra Strong  
WATERPROOF PAPER BAG  
For Cement, Plaster, Lime, Etc.

**West Jersey Bag Co.**  
Camden, N. J.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS





## Hauling brick—

The American Building Brick Company of Cleveland, Ohio, uses this 5-ton Peerless Truck for "Auto truck service in all parts of the city." It is equipped with

# GOODRICH WIRELESS TRUCK TIRES

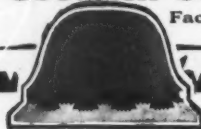
Lawrence B. Koblitz, Manager, wrote us April 14, 1914—"The Wireless Tires on the front wheels of our truck No. 1, placed in service sometime in April, 1913, are still on this truck, having been in service close to 15,000 miles. We will be pleased at any time to recommend your tires." The proof of the tires is in the mileage.

What Goodrich Wireless Tires are doing for The American Building Brick Co., they will do for you

**The B. F. Goodrich Company**

Send today for our motor truck handbook, "Motor Trucks of America"

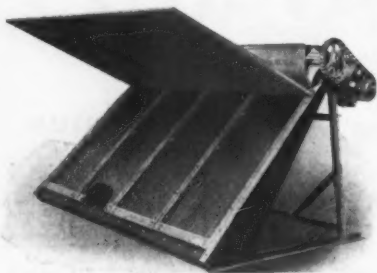
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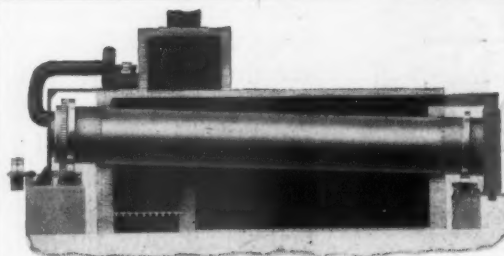
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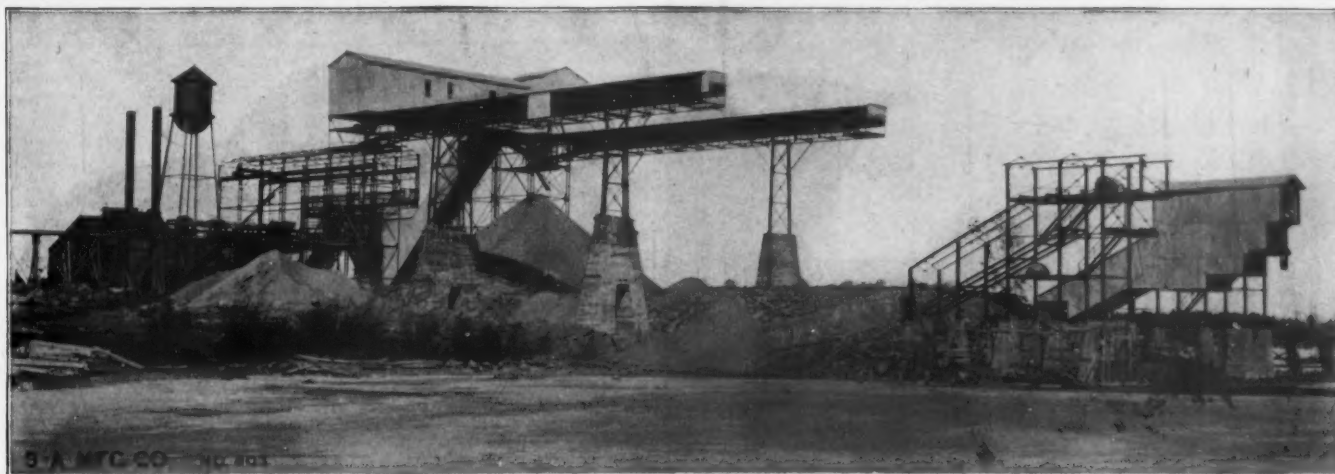
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**THE C. O. BARTLETT & SNOW CO., Cleveland, Ohio**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



## Cutting the Cost of Crushed Rock with "S-A" Conveyors—

We design and equip Rock Crushing Plants, Sand and Gravel Washing Plants, Screening Plants, Storage Systems.

We manufacture Conveyors, Elevators, Transmission Equipment, Gates, Feeders, Car Pullers, Etc.

This Immense Crushing Plant described in "Labor Saver" No. 64. Write for your copy. It's free.

In manufacturing the conveyor equipment for this plant, there were but two requirements—large capacity and absolute reliability. "S-A" Belt Conveyors, only, could fully measure up to these demands.

The crushing capacity of this plant is 500 cubic yards per hour with a storage capacity of 80,000 cubic yards. A duplicate system of "S-A" Belt Conveyors delivers into storage, "S-A" Trippers distributing from the two galleries, shown above. Another pair of 40-inch "S-A" Belt Conveyors operating in tunnels withdraw from storage and deliver over automatic weighing machines to lake vessels at a rate of 1500 cubic yards per hour.

Our Engineering Department is at your service. Write.

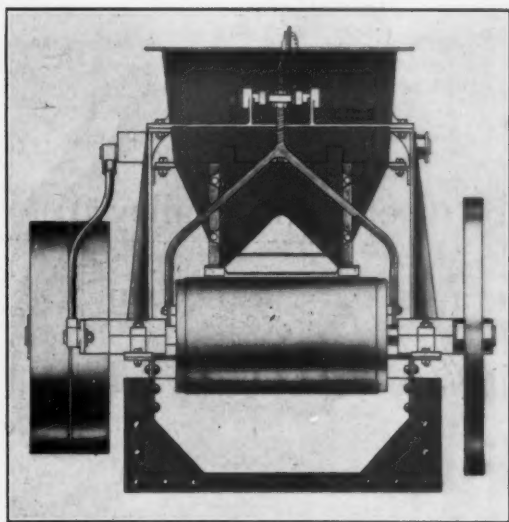
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**Conveying Engineers**

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## To Weigh and Regulate the Flow of Material Traveling in a Continuous Stream Over a Conveyor



The Schaffer Poidometers deliver the material at the rate of a predetermined number of pounds per minute regardless of any reasonable changes in specific gravity, amount of moisture, sizes and nature of material.

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*Uniting different materials in correct proportions.*

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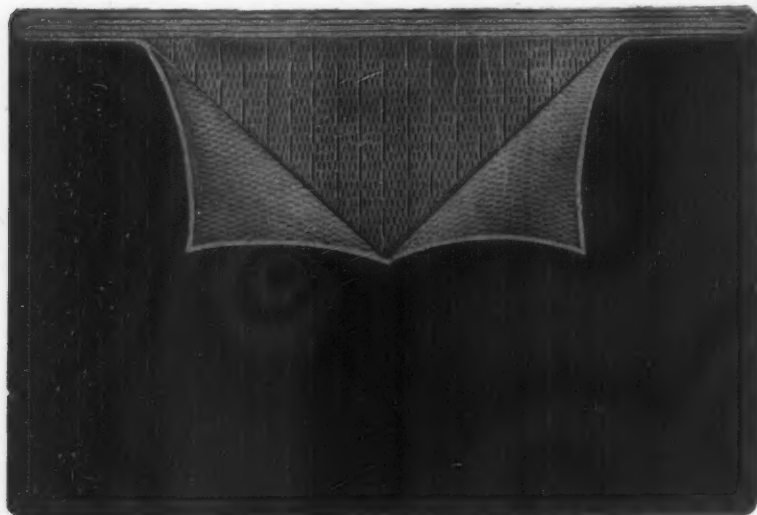
*Feeding crushed coal to boilers.*

*Loading materials into cars or vessels and giving a record of the quantity loaded.*

Write for interesting facts concerning this and other **Secco Systems.**

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## Double-Stitched Belting

Economical for the hard "stand the gaff" service of conveying, elevating—and heavy transmission in Stone Quarries, Cement Mills, and Sand and Gravel Plants.

**WHY?**

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Carried in stock in 1000 foot rolls all sizes from 1 inch to 36 inch wide inclusive

A high grade, honestly made quality belt at the price of an ordinary belt

## Imperial Belting Company

Factory and General Offices:  
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PERMANENT and THOROUGH  
Water-proofing of Cement Work  
results from the use of

## Maumee Compound

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**The Maumee Chemical Co.**  
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**F. L. SMIDTH & CO.** 50 Church St.  
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The whole Ohio Valley  
is rapidly building up  
with the products of

**Wheeling Wall Plaster Co.**  
Wheeling, W. Va.

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# With the QUARRIES

## Too Busy to Think.

Quarry operators in the summer time have very little to say, which always makes a meagre report, and the reason is that a crusher operator usually has so much to do in the bright days of opportunity that he has no time to "hear himself think." This is one of the drawbacks of the quarry business. The monstrous amount of tonnage at insignificant prices, with all of the risks of ponderous and expensive machinery indispensable to the operations of a crusher, makes a burden of responsibility which is not equalled by the activities of hardly any other commercial enterprise. The cost of getting the business in the first place is an item seldom put into the calculations while the matter of interest upon the deferred collections is a thing that he scarcely dares to think about.

Now the production of crushed rock is one of those activities that require a shipping order to be on hand at the very minute that the goods are produced, for storage capacity is always limited and there is no way to operate economically without moving the material promptly. The rehandling of surplus crushed rock that goes into storage is a problem yet to be completely solved. 'Tis true that in recent years we have seen the introduction of storage systems and reclamation devices which have cut these costs down to the minimum but with a margin of only a few cents for the profit upon a whole ton of material, any cost at all of reclamation is likely to absorb the whole profit and more, too, so that part of the overhead charges of a crushing plant which is devoted to the securing of the order is a paramount part of the work and this, as a usual thing, the crusher man does himself for nothing.

It is easy enough for a broken casting or bolt to put the whole plant out of commission, cause the loss of contracts and occasionally the loss of many tons of the output before the operation can be put into balance once more. The whole story of the crushing business of the quarry today has come to be one of investment in equipment, and the reliability of the machinery is the first factor of producing profit. There is no such thing as quarry labor on a large scale any more. Were it not for the advent of the improvement in quarry equipments, it would be impossible to supply any of the important markets of the country with crushed rock and, without the up-to-date equipment, it is entirely impracticable to produce crushed rock at such figures as are commonly quoted at the delivery end.

Nearly all of the quarry operations of this country base their calculations upon a selling price of less than 50 cents a ton f. o. b. the crusher. It is true that in a few exceptional cases we find current and average quotations of crushed rock suitable for concrete and for road and street improvements quoted at \$1.50 f. o. b. the crusher. Such cases are indeed exceptional, as will be promptly recognized by all of our readers, for there is many a crushing establishment that would be glad to average 50 cents per ton for its output. As a matter of fact such a selling price for the product of such an investment and of such an amount of the natural resources of the land is a preposterous thing, not to say an immoral one, and the ways and means of correcting this evil, for it is an evil, will have to be found sooner or later, and the sooner it is found the better for all concerned.

While it is unlawful, both by Federal and State

laws in many of the states, for men engaged in the same line of business to discuss the matter of price to the consumer in any way, yet if the men who know the business best by being engaged therein are not allowed by law to discuss its first essential need, then there can be no intelligent readjustment of this most important problem.

It is immoral to conduct a business representing a large investment and exposing the same to constant risk and not be in a position to provide in the calculation of operation a sufficient profit to cover a retiring fund like an insurance premium so that the element of safety is always present in the operation itself.

To say pointblank that \$1.00 per ton net at the crusher for the 1-inch, 1½-inch and 2-inch size of rock properly screened and loaded in cars would be a fair average price might be going a little too far for this editor man to assume, because there are places where such a thing would be impossible and where the cost and prices are already balanced upon a higher basis. But \$1.00 per ton would make a good comfortable minimum for some of those who are struggling with such figures as 65, 70 and 80 cents per ton, and the Lord only knows what it would mean to those who are trying to get their breath upon such a basis as 50 cents, not to mention that by-product explanation of some 45 and 35 cent quotations that have been in evidence in years gone by, but by no means in the dim and distant past.

We don't want to advise any man or body of men to do things which the law expressly says must not be done, but there has got to be a better system of finding the cost and figuring it and a method of providing a judicious insurance for the risks taken of running a crusher plant besides the wages of the men, as well as the wages for the poor boss man who takes his whenever he can get it. There is no use in this land of plenty for any concern to deliberately proceed to do business at such a great risk as to keep the capital invested in a constant state of jeopardy.

## CHEAPER TO BUY THEIR SUPPLY.

Lansing, Mich., is one of the few municipalities that owns a crusher which is operated by 30 employees for supplying the crushed rock for street improvements. Recently the mayor and superintendent of public works upon a little investigation found out that they could buy from a concern that is in the business of delivering crushed rock all of the supply that could possibly be used by the city of Lansing at a much lower figure than they could produce it. It is practically certain that there never has been a municipal or county crushing plant operated at a figure that would compete with a commercial establishment devoted to the production of crushed rock. As a matter of fact, when the tonnage is taken into consideration, crushed rock is produced and sold at a figure which makes it the cheapest manufactured product known to man, and experience has shown that only those who devote a great many years of study to the problems involved in crushing rock have ever been able to do it economically, and in any event the equipment of a rock crushing plant represents a very large investment of money.

L. M. Barnes and B. H. Hibbard, New Britain, Conn., are promoting a \$50,000 rock crushing proposition which is to be known as the "White Oak Crushed Stone Co."

## BUILDS NEW CRUSHING PLANT.

Weeping Water, Neb., July 3.—The Platte Gravel Co., which has holdings in the vicinity of Louisville, is building a large stone crushing plant at the Oleson quarry a mile west of town. The plant is to have a maximum capacity of 500 tons a day. A part of the machinery has been used near Louisville, but that site has been abandoned because of a better opportunity to carry on the work here. The stone here is of a very high quality and is especially easy to quarry as there is very little dirt to handle.

It is intended to have the plant ready for operation by August. The quarry itself is now being worked by a force of 20 men, filling a three-car-a-day contract with the American Smelting Co. of Omaha. When the crushing plant starts the working force will be increased to 60 men.

S. Spretz & Co., Booneville, Mo., are making extensive improvements at their rock crushing plant. They are installing new screens and hoppers at their works and will largely increase the output.

The Arizona Quarry and Contracting Co., Phoenix, Ariz., has been taken over by C. McDonald Bros. Co., and in the future will be managed by J. R. McDonald. New machinery has been installed and the plant will be improved considerably under the new management.

The Barto Stone & Cement Block Co., of Pottstown, Pa., has been incorporated by William Hallman, E. W. Luckenbill and Livingston Saylor, of Pottstown; John W. Fisher, of Douglassville, and Joseph Barr, of Allentown. The latter is president of the corporation. It is capitalized at \$30,000. Crushing machinery will be installed to supply 1,000 tons of crushed rock daily.

J. W. Bowden, of San Dimas, Cal., has been appointed receiver of the San Dimas Quarry Co. in the legal adjustments of the company's affairs incident to the flood losses of the early spring. The receiver states that he intends to sell the quarry leasehold so that the contract for the supply of crushed rock to the county of Los Angeles can be carried out by a new organization.

Harold Power, manager of the Mountain Quarries Co., operating limestone quarries in El Dorado county, near Auburn, Cal., entertained the Board of Supervisors of that county at an inspection visit to the plant last week. The company is now working at a capacity of 1,000 tons of rock per six hours, operating the quarries by day and the mill at night. The company has completed 700 feet of double-track railroad and has equipped the entire plant to be operated by electricity.

Buildings housing the crushing machinery of the Bettendorf Stone Co., Davenport, Ia., were destroyed by fire in the early part of June, causing a loss of \$5,000. One building was 24x32 feet and the other 15x42 feet. The stone company, which makes a specialty of furnishing crushed rock for concrete paving, will not resume operations, it is said, until the buildings are rebuilt and new machinery installed. Otto Thompson, 820 Kirkwood Blvd., is the proprietor.

# SAND and GRAVEL

## New Gravel Plant With Interesting Features

**Fifteen-Ton Locomotive Crane and Extension Belt Conveyor Aid Pyott Co. to Operate With Minimum Amount of Labor and Power.**

The plant of the Pyott Gravel & Sand Co., which is located about one mile north of Algonquin, Ill., and which has been in operation since early spring, is said to be one of the best in the vicinity of Chicago. The gravel deposit consists of a large ridge, extending several thousand feet parallel with the Chicago & Northwestern Railroad. The deposit and plant are owned by the Pyott estate, with George Pyott as president and general manager.

The material is excavated by a 15-ton "Link-Belt" locomotive crane, having a 45-foot boom and a 1½-yard clam shell bucket. The material is discharged from the bucket into a portable field conveyor hopper about 10 feet square. This hopper is arranged to feed the material directly onto a portable field conveyor. It is arranged for installing an automatic feeder, although at present the material is fed onto the belt conveyor by a feeding gate. The field conveyor is mounted on sectional wood frames which are about 16 feet long. Five troughing idlers are mounted on each frame, and cross timbers provide the main support for the frame. They also act as sled run-

into conical sand separators, which take out the sand and delivers it to the bins below. The muddy water is carried away in spillways to a settling reservoir, in order to provide for recovery of the water. The plant is arranged to load cars on both sides of the



GENERAL VIEW OF WASHING PLANT OF PYOTT GRAVEL & SAND CO.

bins, and has a capacity of 30 to 40 cars per day.

The plant is electrically driven, individual drives being provided for the crusher, screens and conveyors. The novel feature of construction is that the electrical equipment is placed in a room for the purpose in the crusher house. This insures a clean place for the delicate instruments.

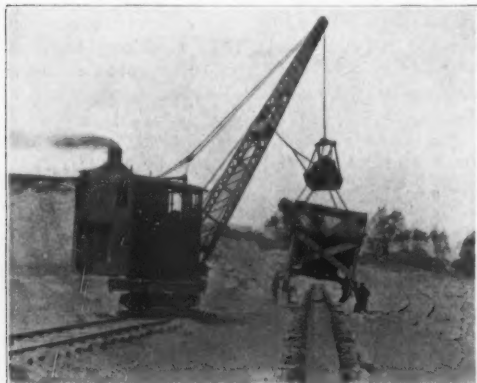
The material has found a ready market from this plant for the reason that the washing is very thorough and the material is of a high grade. The washing water is provided by a 5-inch direct connected high-lift centrifugal pump.

The locomotive crane was furnished by the Link-Belt Co., of Chicago. It is a double truck machine, made almost entirely of cast steel. The engineers advise that it was a great help in the construction of the plant, as well as in the erection of the machinery. It was also used to pull cars back and forth, instead of a switch engine.

The plant was designed and the equipment furnished by The Raymond W. Dull Co., 1910-1912 Conway Building, Chicago, Ill.



LOADING GRAVEL FROM BANK TO CONVEYING BELT BY MEANS OF PORTABLE HOPPER.



METHOD OF PLACING PORTABLE HOPPER IN CLOSE PROXIMITY TO LOCOMOTIVE CRANE.

ners for shifting the conveyor sidewise. This field conveyor has been extended about 600 feet from the junction point of the crusher house conveyor. The belt is 24 inches wide and runs approximately 350 feet per minute.

The conveyor is driven by a separate motor, mounted on a wood frame. The whole conveyor can pivot about the discharge point and when extended to about 1,000 feet will swing around a radius and deliver the particular part of the ridge adjacent to the plant with a minimum amount of labor and power.

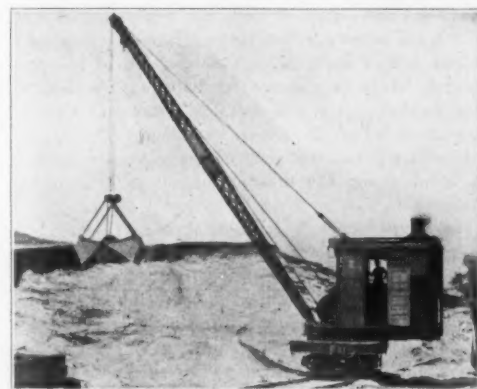
The material is then carried to the top of the crusher house and put through a 48-inch diameter, 12 feet long, cylinder screen, which takes out the oversize stone. The material which passes through the screen goes direct to the main inclined belt conveyor, and the tailings are delivered into a No. 5 gyratory crusher, and reduced to commercial size before delivering onto the main inclined conveyor. The main conveyor takes the material to the top of the washing plant, where it is delivered into two rows of "Dull" inclined gravel washing screens. Three screens are provided in each row, making three grades of gravel. The sand and muddy water are discharged

### SMALL DEMAND FOR LOUISVILLE SAND.

Louisville, Ky., July 18.—The Louisville sand dealers are receiving a good many small orders, but business is comparatively quiet with them just now. The river has been low and the waters as placid as a mill pond, which has made sand digging a comparatively easy task. During high water or strong currents it is a very hard matter to dig sand as the current sweeps the sand out of the bucket as it is raised.

President E. T. Slider, of the E. T. Slider Co., is on a trip to Rising Sun, Ind., where five barges of coal are hung up on a dike. The company's tow-boat, the Northern, was coming down the river with ten barges, 120,000 bushels of coal, in tow when a tiller rope broke while the boat was under a full head of steam. The consequence was that five of the ten barges were thrown up on the dike before the engines could be reversed, as the boat swung around. A digger was sent up from Louisville to assist in the work. The barges were badly damaged, and some of them will probably have to be emptied before repairs can be made. This cut down the digging operations at Louisville considerably with the digger away. The accident happened at Rising Sun, Ind.

The Nugent Sand Co. has been digging steadily,



FIFTEEN-TON "LINK-BELT" LOCOMOTIVE CRANE USED BY PYOTT GRAVEL & SAND CO.

although a large quantity of sand is now in the hoppers and on board the barges. Demands are rather light but are expected to pick up shortly. President J. R. Nugent took a crew of eight men to Madison, Ind., where he chartered a tow boat with which to raise the Sunshine, a pleasure yacht, belonging to S. Thurston Ballard of Louisville. This yacht was run down at Rising Sun, Ind., by the Louisville & Cincinnati Packet Co.'s steamer Indiana a few days ago and sunk. This is the second accident which has happened within a few miles of Rising Sun within a week.

J. J. Gaffney, a local architect, is preparing plans for a new reinforced concrete hopper which will shortly be built by the Nugent Sand Co. The building of the hopper will consume about two weeks, and new conveying equipment has been ordered for the plant.

G. T. Hatley, Carthage, Mo., is taking steps to organize a company for the purpose of operating the sand plant at Guion, Ark., which has been idle for some time past.



**TECHNICAL SOCIETY ACTIVITIES.**

(Continued from Page 21.)

As these laboratories become better organized and their staffs acquire training and skill, is it not to be expected that this agency for research will become a powerful factor in the widening of our knowledge of engineering materials?

**Co-operative Work.**

And now I come to the last of the research agencies to be named, one which I feel is most important in the work of the society, and one on which the future progress of the society greatly depends—co-operative work between the committees of engineering and scientific societies and the laboratories, facilities and store of information of the producer, consumer and independent laboratory. This form of activity takes advantage of the knowledge and experience of the man who is familiar with the processes of manufacturing and their peculiarities and limitations; of the man who knows the needs and the shortcomings of the articles in use; and of the unattached expert who may be able to help to correlate the views and interests of the other two. It gives breadth and depth to the scope of the inquiry and purpose to the method of testing. It assists in the analysis of data and the formulation of conclusions, and may aid in making the action of the society more readily acceptable to all interests concerned. Doubtless, however, the element of patience may need to be developed in such an organization.

You are all familiar with this form of activity in this society and in other societies, and I need only to refer to a few instances to bring to your mind the results which this agency has already accomplished. A case at hand is the report of Committee C-6, to be presented at this meeting, a very valuable piece of co-operative work on the methods of testing and on the available strength of both clay tile and concrete tile, made possible through the facilities of the engineering experiment station of the Iowa State College. Committee C-3 has now available valuable data on the strength of the building brick that are now in use in various parts of the country, secured through co-operation with college laboratories, and the same committee has recommended a standard method of testing paving brick based on a somewhat similar form of co-operation. The work of the committees on iron and steel and on preservative coatings furnishes many similar examples. The report of the committee on concrete and reinforced concrete, which brought order out of chaos, was based on co-operative research work.

Other societies are using the co-operative agencies. Several recent reports of committees of the American Concrete Institute include valuable research material obtained in this way. The American Railway Engineering Association has utilized this agency extensively, though its most important research, that on rail, which is destined to put rail purchase and rail use on a new basis, has been carried on almost independently. In the work of the committees of the American Society of Civil Engineers the extensive tests of steel columns now being carried out form an interesting example of co-operative work. Perhaps the recently constituted joint committee of the two societies last named formed to investigate the stresses in railroad track—rail, fastenings, ties, ballast and roadbed—will prove to be the most extensive piece of co-operative work yet undertaken.

I have named these examples of co-operative work to freshen your memory and to suggest the possibilities of this form of research. I want now to advocate the extension of its use as an activity of the society and to urge upon our committees the value of co-operative research work. It seems to me that members may well encourage the making of larger appropriations for national, state, and semi-public laboratories, and may properly ask

manufacturers and consumers to support liberally research in all lines touching on engineering materials. The initiative for this co-operative work and its direction may well be left to the committees of the society, whose members are so intimately interested in their work. Possibly some day there may need to be a general research committee of the society to co-ordinate work and to stimulate opportunities. What is wanted now is a fuller understanding by the committees of their needs and opportunities and a formulation and direction of the problems before them. Make co-operative research work a feature of the society and the fruits will be visible everywhere.

**CONCRETE IN NEW ZEALAND.**

(Continued from Page 24.)

pare favorably with those of any other part of the world. The different municipal and federal building laws are very complete and are rigidly enforced.

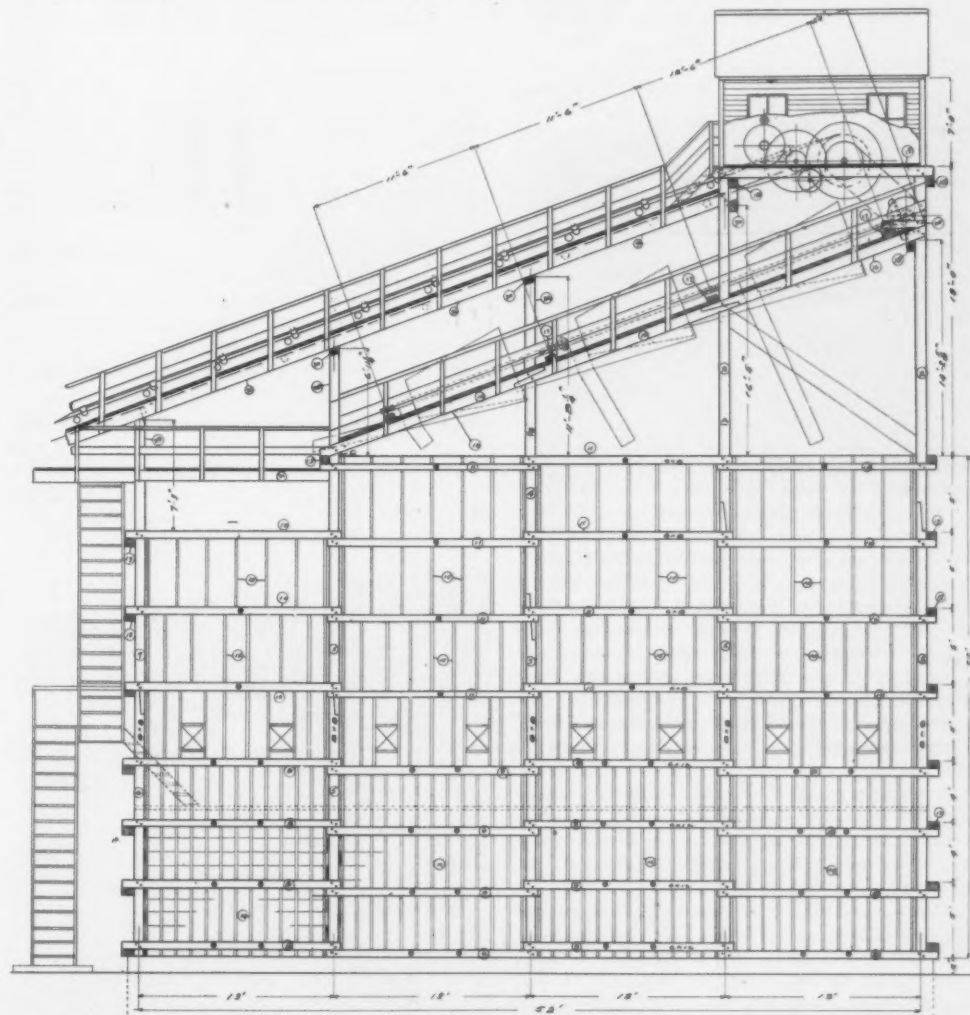
The building trades artisans here are of an unusually high standard of workmanship. There is practically no foreign labor element, in the sense that this term is used in the United States. Practically all the workers are Britishers of more or less education and, while it is true that their demands are probably excessive at times, they give good performance when it comes to their labor. It is claimed here by men who have a thorough knowledge of existing conditions that poor workmanship on the part of an artisan or failure of a contractor to live fully up to the plans and specifications of a building or other character of construction work are practically unknown. The government buildings, and there are many of them, are of the most substantial character. Such a thing as graft in

construction work here has never been known to occur.

Conditions in New Zealand are said to be specially well suited for the use of concrete material. The climate in the extreme Northern portion is semi-tropical and in the Southern portion freezing temperatures are rarely felt. The only drawback met with in concrete construction is the heavy rainfall and dampness that prevails in some localities. Most of the machinery that is used in the cement mills and also the mixers that are used upon the construction works come from the United States. It is stated by men who are employed in the industry here that a little more energetic effort on the part of American manufacturers of machinery and mixers would greatly increase the trade in these lines.

The Dominion government is building each year more dwelling houses for the laboring class which it rents, leases or sells on liberal terms, and the fact that concrete is one of the materials that has been adopted for their erection means the opening of a new field for the material. There is said to be abundant deposits of cement rock in different parts of the country.

The Phoenix Portland Cement Co. is the name of the reorganized Arizona Portland Cement Co. The new company has taken over the cement mill at Tempe, Ariz., and has raised the capital for extensive improvements which it will make immediately. The machinery in this mill was obtained from the mill which the federal government constructed and operated for making the cement that was used in the construction of the Roosevelt dam. It is the only cement plant in Arizona and since its establishment the price of cement in that State has dropped about 40 per cent, it is said.



SIDE ELEVATION OF PYOTT GRAVEL &amp; SAND CO., ALGONQUIN, ILL., BUILT BY RAYMOND W. DULL CO.



# The RETAILER

## Convenience and Economy Features of New Plant

Arrangement of Buildings of Granite City Concern Gives Utmost Satisfaction—Fire Last March Cause of Improvements.

The Granite City Lime & Cement Co., of Granite City, Ill., have just completed the erection of a new set of buildings, which, according to A. W. Eisenmayer, Jr., vice-president, are more convenient, more economical and more satisfactory than the original plant. The former warehouse was destroyed by fire last March. The accompanying illustrations give a good idea of the advantageous arrangement of the buildings and equipment. The office is a one-story structure, built of brick and erected in such a place as to seldom make it necessary for the office to use artificial light in transacting the day's business. Directly connected with the general office is the new warehouse which has been well located. On one side of this warehouse is a loading track, while on the other there is a team track with a loading platform for wagons. This is

arrive at the labor cost for handling the material in question.

The business of the Granite City Lime & Cement Co. has materially increased during the first six months of 1914 over the corresponding period of 1913. Each year has shown an increase over the previous year and the retail business during the



MAIN OFFICE OF GRANITE CITY LIME & CEMENT COMPANY.

twelve months of 1913 was greatly in excess of the retail business in 1912. The business situation in Granite City continues to be good.

### Defends Ohio Lien Law.

A. C. Klumph Declares Building Material Dealers Finance Nearly All Projects.

Dealers in building materials are the financiers of practically all the home building in Cleveland, according to Arch C. Klumph, of the Cuyahoga Lumber Co., of Cleveland, who defended the Ohio lien law at a meeting of the Cleveland Real Estate Board recently. "Until the new law becomes ef-

fective, the concerns backing the building operations are taking all the chances. The banker and money lender are secured with a first mortgage," Mr. Klumph states, "and 93 per cent of all the contractors in the state are without capital to carry on their business, if the building supply house should refuse to give them credit."

Answering many criticisms of the lien law, and the claim that it is "a collecting agency for the builders' supply people," Mr. Klumph went into the conditions that led to the framing of the law.

"Not more than 7 per cent of the contracting firms of the state have capital sufficient to carry on their operations," said Mr. Klumph. "These contractors are mainly engaged upon large operations and the greater part of the home building is done by the other 97 per cent of the men in the business."

"The material dealers are forced to carry from \$600 to \$800 for each job undertaken by these contractors, and this is being done without protection. The Ohio law, which extends the right of lien to the sub-contractor, makes it necessary for the contractor to provide a bond guaranteeing the comple-



WAREHOUSE OFFICE.

located between the team track and the main building.

A feature worthy of emulation is the construction of the building in which to keep the wheeled equipment. All wagons and trucks when not in actual use are carefully protected from the elements. Separate buildings have been built for blacksmith and machine shops. All of these buildings, however, are so situated as to be easy of access from any other building.

The cost system adopted by the Granite City Lime & Cement Co. is said to be exceptionally simple yet practical. In addition to their other devices, they have what they term a "loading card" and an "unloading card," which is used when various materials are handled. A rubber stamp is used for endorsing on the back of the card. The card contains space for the number of men or teams, or both, and the hours they work on the particular job for which the card is made out. According to Mr. Eisenmayer, Jr., it requires only a moment's figuring to



LOADING PLATFORM FOR WAGONS.



WAGON SHED, 50 BY 100 FEET.

tion of the building, free of lien, or produce vouchers for work done and materials used when payments are received from the owner."

### NEW INCORPORATIONS AND VENTURES.

The Vernon Sand & Material Co. has been incorporated with a capital of \$20,000.00 and have established offices in the Columbus Building of Los Angeles, California.

Tideout Silica Sand Co., of Tideout, Pa., has been incorporated with a capital of \$200,000.00.

The River Sand & Gravel Co., of Owensboro, Ky., has been incorporated with capital of \$10,000.00.

The Moraine Gravel Co., of Plymouth, Wis., has been incorporated with a capital of \$30,000.00.

The Lake Shore Sand & Gravel Co. are about to erect a sand and gravel screening plant at Frenchman's Bay, Ont. The home office of this company is at Toronto.

Builders Lumber and Supply Co., Charleston, W. Va. H. T. Miller and others.

Mayfair Building Material Co., Chicago, Ill. Capital \$20,000. S. D. Anderson and others.

## On to French Lick.

### Indiana Dealers Propose to Hold a Summer Meeting at French Lick.

Of all the watering places of the West, there is none more famous nor attractive than French Lick, and besides it is a remarkable health resort. The suggestion for the Indiana Building Material Dealers' Association to hold a summer outing and old-fashioned reunion, at which the dealers can come and bring their families along, has met with very favorable approval.

One formal meeting of the association would be held, in which each of the dealers would be expected to tell of conditions in his own market and line up a bit of enthusiasm with which to carry on the balance of the busy season.

Building supply dealers, probably more than men engaged in any other line, need to shake the dust off for a jovial day together during the summer time.

The train service and summer rates to French Lick are more attractive than to any other point, and the automobile roads leading to all parts of the state are in excellent condition. The Fort Wayne and Indianapolis delegations are sure to come in a procession of autos, and many others from the southern part of the state will also come by auto.

It will make a fine opportunity to gather in a lot of new members for the get-together spirit of Indiana is most cordial and effective once it gets awakened in the right way.

Bring the ladies along and make a jolly time of good fellowship out of the summer meeting.

Bear the date in mind, Wednesday, Aug. 26, at French Lick and arrange your engagements accordingly. Something of interest to everybody will be doing every minute, and it will be worth while for every enterprising dealer in Indiana to be on hand.

## How Cars of Cement Are Loaded.

### Extreme Precautions Are Taken by Manufacturers to Avoid Shortage and Breakage.

In the loading and shipment of a car of Portland cement the greatest pains are taken and every care is used to have the shipment made in such a manner as to reach the customer in perfect condition, according to "The Lehigh," the house organ of the Lehigh Portland Cement Co.

"Every car is thoroughly inspected by the railroad company inspectors as well as by our own inspectors before acceptance for shipping cement," says "The Lehigh." "A car which is damaged or defective in any way is promptly rejected and returned to the railroad company for repairs.

"Cloth shipments are loaded into the cars in even rows, so that they can easily be checked and counted. For paper shipments the cars are lined with extra-heavy straw board to prevent breakage, and the bags are piled on the flat side in what is called the 'pyramid style'; it has been proved that this plan of loading reduces the breakage to the smallest possible amount.

"Just inside the door of each car is tacked a loading card, which shows the number of bags loaded, giving the number of rows and number of bags per row, so that the shipment can easily be tallied. Always check the car with this card as you unload the cement.

"It will sometimes happen, in spite of care used in the inspection and loading the shipments, that shortages or damaged bags are found. A car may be jolted about until the sides or roof begin to leak, or the seals may be broken and some bags lost or stolen, and then there is a report of damages or shortage. There is no reason why there should be any net loss in such a case, if the following simple procedure is taken immediately:

"First—In case of damage or shortage, always

have the railroad agent inspect the car before you unload the cement, and require him to note on your receipted freight bill just what amount the damage or shortage is. If the claim is for shortage, have him also give a record of the seals on the car when it was delivered, stating whether or not they were broken, and attach to the freight bill the tally card mentioned above.

"Second—Send us the freight bill with the notation of the trouble, together with the bill of lading for the car and an itemized bill for the loss.

"If you will send us the papers as soon as the car has been unloaded, and they are in proper form, we will handle the matter with the railroad companies through our traffic department, adjusting the claim with you promptly, and sparing you the trouble and annoyance of fighting the claim with the local railroad office."

## Empty Sack Question Reaches Court.

A peculiar condition affecting the manufacturer, dealer and customer has brought the sack question into court and a decision has just been rendered against the manufacturer which compels him to purchase the empty bags from the customer at 10 cents apiece, although when purchased originally the bags and their contents were never paid for. The facts of the case are as follows:

Two carloads of hydrated lime were shipped in returnable packages to a dealer. The dealer disposed of the material to a customer who paid him cash for both lime and bags. The dealer went into bankruptcy without having made settlement with the lime company. The dealer's customer returned the bags to the company prior to the bankruptcy proceedings and, in accordance with the usual custom, credit was given the dealer for the bags so returned. The dealer's customer was unable to collect his money from the dealer for the bags and sued the manufacturer.

The magistrate, in rendering his decision against the manufacturer, claimed that the return tags attached to the bags, reading "this bag will be purchased at 10 cents when returned in good condition, freight prepaid," etc., made a new contract with the third party when the bags were accepted by the manufacturer. As a result the cement company was obliged to pay twice for the same bags, first when they credited the dealer with the return of the sacks and secondly when they paid the customer at the request of the court.

To avoid recurrences of this nature manufacturers shipping their materials in returnable bags are advised to change the wording of the attached tag to read as follows: "This bag will be purchased from the original purchaser at 10 cents each," etc.

Fortunately, bankruptcies are not common occurrences among builders' supply dealers.

## ENCOURAGE CONTRACTORS TO PROTECT MATERIALS.

Retailers of building materials should encourage contractors to whom such materials are delivered to protect them when they arrive on the job. At this season of the year it is especially desirable to have certain materials protected from rains and if a little good judgment is exercised on the part of the contractor or superintendent in charge of a job receiving materials, it will prevent the loss of many dollars.

It is also advisable that retailers instruct contractors to see that all materials are counted and carefully checked upon their arrival. This checking, in the presence of the driver, will have a tendency to lessen the number of disputes between building material dealers and contractors. If there is a shortage it will be reported at once and if there is no shortage the receipt will show that the material was received in first-class condition.

## Maryland, Delaware and Washington D. C. Dealers to Organize.

### Leading Retailers to Assemble at Emerson Hotel, Baltimore, Tuesday, Aug. 4.

After thoroughly discussing the advisability of forming a district association, leading building material retailers of Maryland, Delaware and Washington, D. C., have decided to hold a meeting for the purpose of organizing such an association at the Emerson Hotel, Baltimore and Calvert streets, Baltimore, Md., on Tuesday, Aug. 4, at 2:00 p. m.

Every retailer in the states of Maryland and Delaware and in the District of Columbia is not only invited to attend this meeting, but urged to do so. The benefits possible from an association of the retailers of this district can be measured largely by the number of members the association will have. If every retailer would join in the movement for bettering his own conditions, the smallest retailer in the remotest community would receive benefits as well as the retailer in the larger centers.

The leaders in the movement for an organization of the retailers of Delaware, Maryland and Washington, D. C., have realized for some time that the dealers' situation is not entirely satisfactory.

Individually little can be done, but the experiences of the various building material dealers' associations of the country have demonstrated that collectively benefits can be secured for the industry as a whole as well as for the individual retailer.

There is no cause for retailers to get together for the purpose of fixing prices. The men behind the movement have no intention of proposing anything of that kind, but realize that competition among men who are not acquainted with each other begets jealousy—and jealousy will result in most any tactic which not only fails to be of advantage to the jealous party, but will work a detriment upon him as well as upon those whom he is jealous of.

The policy behind the proposed organization is that of co-operation and reciprocity. Wherever successful organizations have been conducted there has been found a most pleasing co-operation between retailers and reciprocity on the part of manufacturers; that is, retailers, when acquainted with each other, learn to recognize the rights of their competitors and manufacturers recognize the demands of organized efforts where demands of individuals are sometimes ignored, because these demands if granted may result in the revolution of the business policies of the various manufacturers. It is difficult for these manufacturers to change their policy for every retailer making demands, but, when a demand comes from an organization composed of a large number of dealers, the manufacturers recognize the fact that the improvements demanded are needed by the retailers and are willing, therefore, because of the extent of the business represented by the association to change the policy of their institutions so as to conform as far as possible with the requirements of the retailers.

A number of men with association experience have signified their intention of attending the meeting at the Emerson Hotel to address the dealers assembled on Aug. 4 on the advantages possible from building material dealers' associations.

The retailers of this district are in earnest and an association will be organized on Aug. 4. It is desirable and necessary that every progressive retailer of Maryland, Delaware and Washington, D. C., attend the meeting.

ROCK PRODUCTS AND BUILDING MATERIALS urges every retailer in the district to put aside Tuesday, Aug. 4, for the purpose of spending the day in attending the meeting at the Emerson Hotel. As a result you will return to your field of activity on the following day with more enthusiasm, vigor and vim to conduct your business than you have had for some time past. Getting together with fellow retailers and discussing the problems which arise in the course of your business can not but result in the bettering of that business.



# NEWS of the TRADE

## General Building Conditions.

### Building Permit Reports Show More Activity Than Existed a Year Ago.

There was an increase in building construction in the principal cities of this country in June of 3 per cent over the totals of a year ago, notwithstanding the abnormally high figures of that month. Building is apparently going on at about the accustomed pace to meet the demands of the growth in population. During the month just closed permits were taken out in eighty leading cities, according to official reports to Construction News for the construction of 19,126 buildings involving a total estimated cost of \$71,147,005, as against 17,864 buildings aggregating in cost \$68,760,329 for the corresponding month a year ago, an increase of 1,262 buildings and \$3,386,676, or 3 per cent. The figures in detail are as follows:

Cities.	No. of Bldgs.	Estimated Cost.	No. of Bldgs.	Estimated Cost.	% Gain.	% Loss.
Chicago	1,851	\$ 9,538,300	1,066	\$ 7,009,370	25	..
Boston and vicinity	541	8,438,000	403	6,946,000	22	..
New York	423	6,475,807	286	5,967,555	7	..
Brooklyn	917	5,628,863	903	3,511,277	73	..
Philadelphia	1,734	3,779,635	1,450	4,188,800	..	9
Pittsburgh	488	3,569,000	394	2,502,000	11	..
Pittsburgh	487	3,450,381	348	2,750,072	34	..
St. Paul	973	1,981,250	238	1,072,836	84	..
Los Angeles	946	1,682,057	1,380	2,419,784	..	30
Kansas City, Mo.	322	1,632,700	316	904,375	80	..
Minneapolis	719	1,594,195	632	1,408,645	..	11
San Francisco	495	1,308,888	456	1,675,554	..	28
Seattle	788	1,163,163	797	897,310	39	..
Rochester	353	1,026,287	219	1,444,108	..	20
Baltimore	339	970,949	339	746,567	30	..
Washington, D. C.	472	948,285	410	1,353,518	..	24
Milwaukee	430	809,989	460	1,481,377	..	39
Indianapolis	331	881,118	285	404,651	117	..
Albany	351	860,585	241	165,613	419	..
Indianapolis	657	841,338	578	952,083	..	11
Portland, Ore.	536	834,435	472	947,125	..	11
Worcester	184	746,598	189	540,273	38	..
Columbus	268	625,650	373	567,791	13	..
Dallas	186	588,945	195	986,015	..	27
Newark	327	546,320	265	1,089,778	..	46
Birmingham, Ala.	308	573,189	285	577,169	..	1
Springfield, Mass.	184	560,736	194	494,481	12	..
Louisville, Ky.	303	517,540	293	867,750	10	..
Erie	163	454,846	163	428,546	41	..
Oakland	319	451,331	303	577,517	..	21
New Haven	191	440,371	101	841,776	29	..
San Diego	426	426,330	..	385,995	10	..
Akron	378	414,318	276	378,790	10	..
Atlanta	399	410,654	219	656,169	30	..
Wilkes-Barre	106	410,811	346	88,278	365	..
Omaha	169	404,025	131	329,650	19	..
Fort Wayne	94	394,056	103	375,843	44	..
Pasadena	138	356,587	134	159,014	124	..
New Orleans	..	354,599	..	643,264	..	45
Youngstown	144	338,720	109	628,015	..	46
Utica	99	339,816	64	272,557	21	..
Sacramento	98	339,052	120	558,310	..	41
Nashville	62	315,449	57	273,859	15	..
Springfield, Ill.	47	298,529	31	47,870	513	..
Memphis	322	292,013	267	715,843	..	60
Cedar Rapids, Ia.	69	270,000	72	491,000	..	43
New Bedford	114	269,825	98	344,022	16	..
Trenton	90	256,638	66	247,699	4	..
San Antonio	394	240,920	222	160,009	34	..
Portland, Me.	52	215,325	51	160,500	34	..
Duluth	163	215,305	163	145,384	48	..
Tampa	121	212,050	121	130,929	62	..
Lawrence	12	207,725	16	89,710	131	..
Paterson	121	186,328	49	84,426	120	..
Stockton	44	185,228	95	137,415	18	..
Peoria	63	175,800	34	139,875	18	..
Richmond, Va.	93	178,539	58	153,778	12	..
Savannah	75	168,250	62	266,240	..	38
Charlotte	39	157,195	42	188,765	..	16
East St. Louis	34	155,720	67	96,938	48	..
Berkeley	107	153,050	79	304,800	20	..
Schenectady	91	140,585	87	438,889	..	65
Altoona	129	134,967	94	130,232	2	..
Allentown	30	123,975	26	86,100	36	..
Holyoke	13	122,925	14	46,975	182	..
Elizabeth, N. J.	49	122,432	57	193,181	..	31
Harrisburg	27	121,850	23	81,875	61	..
Kansas City, Kan.	64	120,843	62	64,625	96	..
South Bend	70	120,776	48	64,625	96	..
Syracuse	76	108,802	39	85,692	26	..
Bayonne	25	96,160	19	101,840	..	5
Pasaic	48	89,360	38	90,525	..	..
Troy	..	88,668	..	594,358	..	82
Spokane	..	83,025	68	411,785	..	79
Tacoma	119	80,611	159	325,864	..	84
Hoboken	27	75,731	20	119,718	..	28
Topeka	28	70,085	39	51,565	25	..
Reading	44	67,575	29	25,350	166	..
Chattanooga	190	60,043	186	178,710	..	84
San Jose	44	47,599	28	39,290	62	..
Pueblo	20	40,916	35	48,981	..	16
Totals	19,126	\$71,147,005	17,864	\$68,760,329	3	..

There were gains in forty-six cities and decreases in thirty-four. In an analysis of the figures it would be unfair to show that any one section of the country leans in one particular direction except that the tone is generally good. Chicago in point of volume leads with an increase of 25 per cent, Boston and vicinity 22, Brooklyn 73, Buffalo 11, St. Paul 84, Kansas City 80, Seattle 29, Baltimore 30, Toledo 117, Albany 419, Worcester, Mass., 38, Columbus,

Ohio, 12, Springfield, Mass., 13, Louisville, Ky., 40, Erie 41, New Haven 29, San Diego, Cal., 10, Wilkes-Barre 365, Omaha 19, Fort Wayne 44, Pasadena 124, Utica 21, Nashville 15, Springfield, Ill., 513, New Bedford, Mass., 15, Trenton 3, San Antonio 41, Portland, Me., 34, Duluth 48, Tampa 62, Lawrence 131, Paterson 120, Stockton, Cal., 18, Richmond, Va., 12, East St. Louis 43, Altoona 2, Allentown 96, Holyoke 182, Harrisburg 61, Kansas City, Kan., 130, South Bend 86, Scranton 26, Troy 83, Topeka 35, Reading 166, San Jose 62.

New York had a loss of 7 per cent, Philadelphia 9, Pittsburgh 34, Los Angeles 30, Minneapolis 11, San Francisco 22, Rochester 29, Washington, D. C., 24, Milwaukee 39, Indianapolis 11, Portland, Ore., 11, Dallas 37, Newark 46, Oakland, Cal., 21, Akron 15, Atlanta 36, New Orleans 45, Youngstown 46, Sacramento 41, Memphis 60, Cedar Rapids, Ia., 45, Peoria 12, Savannah 38, Charlotte 16, Berkeley 20, Schenectady 65, Elizabeth, N. J., 31, Bayonne 5, Spokane 79, Tacoma 84, Hoboken 36, Chattanooga 54 and Pueblo 16.

No one particular section of the country shows any remarkable decrease, which would indeed not be surprising because of the tremendous activity heretofore. The entire situation shows remarkable improvement and one is justified in expressing the thought that there is every reason to believe that the activity will continue throughout the year.

### KANSAS CITY BUILDING CONTINUES GOOD.

Kansas City, July 18.—July business has shown up fairly well in Kansas City, building permits continuing to show consistent gains over those for the corresponding period in 1913. The first 15 days of the month have loomed up favorably. Permits for June maintained the margin in favor of 1914, permits worth \$1,632,700 being issued, as against \$904,375 for the corresponding period in 1913. The number of permits was about the same, 322 being issued recently, against 316 last year.

The Kansas City Master Builders' Exchange recently took new quarters, moving from the Non-quitt building on Grand avenue to the Midland building. The organization has almost 200 members and the steady growth of the association made larger quarters imperative. E. L. Marty is president. The change of quarters was celebrated by a turnout which is rivaled only by the annual meeting, practically the entire membership joining in the housewarming.

H. F. Abell, senior member of Abell & Hardy, a supply house of Versailles, Mo., has retired from active business for the present, D. C. Hardy, Jr., taking over his interest in the company. The latter will continue the business as in the past. All old accounts are included in the transfer. Mr. Abell has not definitely decided on his future plan, but may re-enter the supply field after recuperating.

Charles Dingee, a hustling supply man of Beloit, Kan., has been made manager of the Beloit branch of the Chicago Lumber & Coal Co., which operates a string of supply yards in Kansas. Mr. Dingee has been with the company for the last year, and during that time indicated a large measure of executive ability.

The five lumber and supply companies of Pittsburgh, Kan., came to the rescue in fine shape following the destruction of Russ Hall, the Pittsburgh State Normal building. The various companies

donated the material for the construction of a temporary auditorium. This action resulted in only the loss of a few days' time by the students at the college. The supply men at Pittsburgh are considerably hampered by the strike on the Joplin & Pittsburgh Railway, an electric road. The entire system of 100 miles is tied up, with little prospect of any adjustment of the difficulties between the management and 150 employees.

### Twin Cities Active.

Minneapolis and St. Paul, Minn., July 18.—The development of the leading cities of the great Northwest is phenomenal. The record of growth in wealth and beauty of St. Paul and Minneapolis is something to be proud of. Every one is delighted to hear of the prosperity of these two cities, and now Minnesota comes forward with a gain in building construction for the first half of the year of almost \$4,000,000, in comparison with the corresponding period of a year ago. Building activities are far in advance of any other half year in the history of the city, the total for the six months being close to the \$10,000,000 mark. The figures show a gain of nearly \$4,000,000 over the same period of last year. The increase in the number of permits issued shows that building activities have not been confined to large buildings in the downtown section, but have included many smaller homes, duplexes and apartment buildings in the residence portion of the city.

St. Paul is also achieving wonders. Building in St. Paul for the first six months of this year amounted to \$7,918,688. The record in building made in 1909, amounting to \$12,089,451, doubtless will be shattered several million dollars this year. With practically \$8,000,000 worth of permits already taken out, it will be necessary during the next six months to maintain a pace of only \$695,127 per month to beat the 1909 mark. In 1909 building during August, September, October and November exceeded \$1,000,000. On the face of the present situation all building records will be smashed this year as a result of the prosperity St. Paul is now enjoying.

### NEW ORLEANS DEALERS' OUTING.

New Orleans, July 18.—The annual outing of the Contractors' and Dealers' Exchange, one of the occasions to which the members look forward with keenest anticipation, will take place next Thursday, the excursion to be by barge, as usual, and to leave from West End in the early morning. According to reports given out by the big committee in charge of the arrangements, of which President Walter F. Jahnke is chairman, the attendance will be the largest and most representative recorded in the history of the important industrial organization.

Beyond announcing that the frolic will be "Over the Waves" the committee has not even hinted as to what the point of destination is to be. The big barges of the Jahnke Navigation Co., which are to convey the members and their guests, will, as usual, be canopied with tarpaulins and fittingly decorated. The entertainment committee, composed of geniuses in this line, has prepared a program which for uniqueness and classiness has never been excelled on any vaudeville stage. It will afford no end of fun and amusement of an entirely original character. The

character of the generous number of features is a secret which is being carefully guarded, only one—the wireless telephone demonstration—having been made known. It is needless to state that the breakfast, luncheon and dinner which will be served will be as tempting and satisfying as could be imagined, the committee having this in charge having prepared to excel any previous endeavor in this direction.

### Chicago Leads Country.

Chicago stands at the head of all the cities of the country for building operations during the month of June, leading New York by 631 in the number of permits issued and by \$3,062,403 in the total cost.

Chicago has for the month of June 1,054 permits with a total cost of \$9,538,300 as compared with \$7,609,370 for June, 1913. The showing is a surprisingly good one and indicates the surprising rapidity in which the city has gone ahead following the settlement of the brickmakers' strike. The month's building permits show an increase of three per cent over June a year ago.

Considering that with the beginning of July there is usually a lull in brick orders, the brick dealers of Chicago are to be congratulated on their splendid showing, for during the first 15 days of July orders were received for 4,528,516 face brick.

A meeting of the Chicago Face Brick Association was held at the Hotel Sherman on the evening of July 8, when the manufacturers gave a dinner to their salesmen at which Mr. Garry Mars, advertising manager of the Hydraulic-Pressed Brick Co., talked on the "Ethics of Salesmanship." Until this meeting was held few people realized the number of men engaged in the sale of face brick in the city of Chicago. There were 65 face brick salesmen assembled that evening.

The labor graft charges as brought forth by John J. McLaughlin of McLaughlin Building Material Co., and printed in the last issue of ROCK PRODUCTS AND BUILDING MATERIALS has reached the Federal Grand Jury. The shipping of material from out of state points into Chicago constituted interstate traffic and as a result the Federal government is inquiring into the operations of "get rich quick" union business agents.

Brick dealers of Chicago are showing their progressiveness by using full page advertisements in the Chicago Sunday newspapers. No particular brick is specialized in these ads, but face brick in general is treated. In an advertisement in the "Chicago Sunday Herald" of July 5, two elegant brick homes and a brick pergola are shown. The ad is labeled "The Beauty of Modern Brick," the first paragraph of which reads as follows: "Refined by the modern art of today and with the proved indurability of 6,000 years brick is the accepted building material of the present time."

Manufacturers and dealers of Chicago are confident that there will be a good fall trade in the building material line, but deplore the fact that a car shortage is almost upon us. Commenting on this situation Mr. Blaine Smith, assistant sales manager of the Universal Portland Cement Co., says: "Railroad men predict a car shortage and from all indications it will surely be upon us within the next 60 days." Speaking in an optimistic way of general conditions, Mr. Smith says: "The steel business down East is better and in general lines of business there is a greater tonnage and conditions generally seem to be improving. We look for a good fall trade with bright prospects in every line."

Mr. Robertson, of the Hydraulic-Pressed Brick Co., reports conditions just about the same as during the month of June; comparing in general about the same as during the month of July, 1913.

On interviewing Mr. Podolsky of the Bonner and Marshall Co., who has just returned from a business trip to Cressingham and Comber, Ohio, in company with Mr. Bonner, he declares that they have picked up a few fair-sized orders during the past

two weeks, but that business is generally slow, being about 20 per cent less than during month of July a year ago. He states, however, that if prospects in Ohio can be used as any criterion he looks for a very busy and splendid fall business.

The National Brick Co. claims that no orders are coming in to amount to anything, but from present indications feel that their business ought to be rushing within a month or two. Their business remains about the same as during July, 1913.

Mr. Binyon, of the S. S. Kimbell Brick Co., reported business very quiet, as generally expected during the months of July and August, and he does not see any change from conditions existing during July, 1913.

Mr. Meacham, of the Meacham and Wright Co., says: "After a tie-up of three months, we are now doing some business. New work is not coming out as rapidly as it might, but we look for a good fall business. Orders generally fall off during July and August."

### News of Louisville Retailers.

Louisville, Ky., July 18.—The building supply houses of Louisville report a fairly good volume of business in spite of the fact that the majority of the orders are small. Although there has been considerable complaint of the lightness of the building permits this season, the aggregate is showing a gain of about five per cent. The only big jobs to come out this year are those on the new public schools of the city, and prices made on brick and other materials have been rather low. Lime and cement have been in fairly good demand in small quantities, with prices holding steady.

The R. B. Tyler Co., of Louisville, has managed to land several very fair-sized contracts during the past few days, among them the brick for the new Louisville boys' high school. The contract awarded was for 234,000 ox-blood Devonshires, manufactured by the Kuschequa Brick Co., of Kuschequa, Pa. About 200,000 inside brick are still to be let on this job by Bailey & Koerner, the general contractors. The Tyler Co. has also received the contract for the brick to be used in the new Y. M. C. A. building at Second and Jacob streets. More face brick will be used on the inside of this building than on the outside, as the gymnasium will be of grey face brick.

Three more contracts on school buildings are to be let shortly in this city. One contract will come through Ward & Glossop's office, one through Joseph & Joseph and the other through John Bacon Hutchins, all architects. The building supply men are looking forward eagerly for the letting of these contracts, which promise to be good ones.

Isaac H. Tyler, president of the Tyler Building Supply Co., has received several small contracts of fairly good quality, but reports that business is not quite as good as he expected it to be. However, there is a good deal of work still to be let and he expects to get his share of it. Out of town business has been better than city work lately. He received a contract for 38,000 fine face brick for a new jail at Hazard, Ky., and 22,000 for a new public school building at Elizabethtown, Ky.

L. M. Parsons, of the Union Cement & Lime Co., reports that he is finding things rather slow in the brick line just now, but is handling a fairly good amount of lime and cement in small quantities.

James O'Bear, secretary-treasurer of the Louisville Builders' Supply Co., reports that things have been fairly humming with the company during the past few weeks, but that the orders have been small, which meant a great deal of extra work in handling.

Wheeler & Putnam is the style of a new building supply concern which was recently incorporated at Ashland, Ky., to deal in builders' supplies. The new concern is incorporated at \$10,000. The incorporators are W. P. Wheeler, D. H. Putnam and I. D. Harbet.

### Building Material Prices.

#### Portland Cement.

The price of Portland cement is very firm, little change having been noticed in the past month. In some instances the price of cement has been advanced five cents per barrel. Current prices for Portland cement including cloth sacks are:

Chicago, \$1.56; Cleveland, \$1.68; Buffalo, \$1.64; St. Louis, \$1.65; Des Moines, \$1.88; Minneapolis and St. Paul, \$1.85; Detroit, \$1.64; Pittsburgh, \$1.51; Indianapolis, \$1.70; Toledo, \$1.68; Milwaukee, \$1.74; Omaha, \$1.78; Louisville, \$1.90; Kansas City (in car lots), \$1.55; Philadelphia, \$1.95; San Francisco, \$2.40.

#### Lime.

Chicago, barrel, 60 to 70c; Louisville, barrel, 90c, bushel, 28c; Austin, Tex., barrel, 80c; Philadelphia, barrel, 85c to 90c, bushel, 27c; San Francisco, barrel, \$1.25 to \$1.50; Kansas City, standard, bushel, 32c; Ash Grove, bushel, 37c.

#### Crushed Stone.

Chicago, per ton, \$1.32; Louisville, 2½-inch (car lots on track), per ton, 90c, screenings, 80c; Austin, Texas, 75c; Philadelphia (at quarry), 75c; San Francisco, cubic yard (at bunkers), \$1.25.

#### Sand and Gravel.

Chicago, torpedo sand, per ton, \$1.25; bank sand, \$1.00, crushed gravel, \$1.20, roofing gravel, \$1.45; Louisville, sand, per cubic yard, 60c, gravel, 75c, roofing gravel, \$1.25; Austin, Tex., sand, per ton, 50c, gravel, 50c; Philadelphia, sand, per cubic yard, \$1.25 to \$1.90, pebbles, per ton, \$1.30, gravel, per cubic yard, \$1.25 to \$1.75; San Francisco, bank sand, per cubic yard, \$1.00, plaster sand, per cubic yard, \$1.50; gravel, \$1.25; Kansas City, per ton, Missouri, 20c, better grades, 30c.

#### Brick.

Chicago, face brick, per thousand, \$14 to \$30; Philadelphia, salmon brick, \$6.50 to \$8.50, hard brick, \$8 to \$10, face brick, \$20 to \$30, tiled faced brick, \$60 to \$63, No. 1 rolling mill fire brick, \$35.

#### Hard Wall Plaster.

Chicago, cement plaster, per ton, \$8.50 to \$9.50, wood fibre plaster, \$9.50 to \$10.50, plaster board, \$16 to \$17 per thousand square feet; Kansas City, \$9 a ton net.

### Obituary.

L. C. Jackson, president of the Jackson-Walker Coal and Material Co., of Wichita, Kan., passed away at his home July 7 after ailing for several months with Bright's disease. He was one of the pioneers in the coal and building material trade in the state of Kansas, having gone into that business in 1879. In addition to the Jackson-Walker Coal and Material Co. he was president of the Jackson-Walker Mercantile Co., Kansas City Coal and Material Co., Marcelline Coal and Mining Co., Marcelline Mercantile and Supply Co., and Toluca Coal Co.

Mr. Jackson was 54 years old at the time of his death and an estimable man in all respects. His untimely death is mourned not only by his numerous business associates, but also by the innumerable friends who have known him in business and in social ways for a great many years.

In addition to the Wichita office, the Jackson-Walker Coal and Material Co. operated under the same name at Topeka and under the other names given above in various parts of Kansas and Missouri.

### SLIGHT DECREASE IN SOUTH.

Building permits issued for the first six months of 1914 show a slight decrease in the South and Southwest. This is probably due in a large measure to the general industrial depression and is more notable in the large cities. In some localities, however, substantial increases have been made.



# Reading Retailers Have Interesting Histories

Activities of Four Progressive Building Material Dealers, Located in Different Sections of the City, Extend Over Score of Years—Association President Has Ideal Warehouse Facilities.

Reading is a city of a few more than 100,000 inhabitants, located in Berks county, Pennsylvania, and 50 miles northwest of Philadelphia. The city is reached by the Pennsylvania & Reading (The Reading) and the Pennsylvania railroads. The Susquehanna river flows through the western portion of the city and divides it from West Reading, a city of 10,000 population. It is undoubtedly due to the presence of the river that the city was located at this particular place. To the west of the city for a short distance the ground is comparatively flat, but it soon rises into hills and later into mountains. To the north and south small mountains are visible from the city's streets and on the east the city itself boasts of having two mountains, Mount Penn and Mount Neversink.

Previous to 1907 Reading progressed as does other cities of its size, but the panic which struck the country at that time laid a heavy hand upon Reading and deprived it of a large part of its business activities as well as a portion of its population. Reading is a manufacturing city and consequently it was one of the first to suffer during the money stringency period. At the close of the panic, Reading made a close survey of her financial and business conditions. As a result of the business battle, she was seriously crippled, but with a determination that is characteristic of Reading inhabitants she decided to "come back," even though it take a number of years to do so.

Each year since then Reading has made gains over the previous year but it has not been able to compare its figures favorably with periods previous to the panic. Conservative business men, however, predict that 1914 will place Reading in the position she occupied before 1907.

The building material industry has naturally suffered in connection with the other businesses of Reading but the retailers of builders' supplies have remained enthusiastic, and have succeeded in keeping the orders for builders' supplies within the confines of their city. There are four progressive builders' supply dealers in Reading, each of whom has been associated with the business at least a score of years. The yards and warehouses are located in different sections of the city, but all near the center of building activities.

## Association President Heads Principal Yard.

The principal builders' supply firm is owned by the president of the recently organized Building Material Dealers' Association of Eastern Pennsylvania, Charles A. Miller, and is known by the name of C. D. Miller & Son. This firm boasts of one of the most up-to-date warehouses in the country. The warehouse is built entirely of brick, is large and



COAL POCKETS IN C. D. MILLER & SON'S YARD. commodious and has three large doorways through which teams may enter. The property is located at the corner of Second and Chestnut streets and has entrances on each of these streets in addition to

one in the rear of the building and used in connection with the yard.

A railroad siding runs through one side of the yard and flush with the north end of the warehouse. Cars may be unloaded either directly through large windows into the warehouse or into wagons. A platform of sufficient size has been built in one corner of the warehouse so that perishable material, such as lime, plaster, cement, etc., may be taken directly from the cars and placed upon the floor of this platform with an assurance that it will not be affected by the moisture or coldness which might be found in concrete floors or the bare ground.

One of the principal features of the Miller warehouse is a pair of steel tanks used exclusively for the storage of lime. They are made of one-quarter-inch tank steel and are ten feet in diameter. The height of these tanks is ten feet and they have a capacity of 500 bushels each. They are constructed within the warehouse and built a short distance from the 17-inch brick wall, so that an air space is maintained between the wall and the tanks. There is absolutely no chance for the sun to come in connection with them. With this ample protection from heat, lime can be kept for a period of six months or more.

It was in 1876 that C. D. Miller organized the firm of Charles D. Miller at the foot of Chestnut street and the Schuylkill River. A partnership was formed with Mr. Miller's son, Charles A. Miller, in 1899, and the name of the firm changed to C. D. Miller & Son, the present firm name. The father died in January, 1903, and since that time Charles A. has been conducting the business under the old firm name. In 1910 it was found convenient to locate the business on its present site, which was at that time occupied by a foundry. The property, includ-



A. L. ROTH CO.'S OFFICE AND WAREHOUSE—M. A. GRING, OWNER, ON STEPS—NOTE SIDING RUNS DIRECTLY INTO WAREHOUSE.

ing the structure and 239 feet frontage on Second street with a depth of 151 feet on Chestnut street, was secured. As soon as possible the old structure was razed and the modern warehouse and yard now occupying the site was designed and constructed.

The business of this firm is owned entirely by Charles A. Miller. He, with his brother, William, constitute the entire office and sales force.

In addition to the retail trade they do an immense wholesale business. Four teams and wagons supply the trade throughout the year and during the building season extra teams are hired. In addition to builders' supplies, the Miller company handles coal.

## A. L. Roth & Co. Organized in 1871.

The firm of A. L. Roth & Co., now owned by Milton A. Gring, was started in Reading as early as 1871. After conducting its business in other quarters for a few years, the Roth company moved to its present location at 49 South Seventh street, which is on the main line of the Reading railroad and has

a siding from this main line directly into the warehouse. The warehouse was built shortly after Mr. Roth secured possession of the property.

From the time Mr. Roth died a few years ago until March 1, 1913, the business was conducted by S. F. Newpher, his son-in-law. At the latter date Milton A. Gring bought the business from the A. L. Roth estate. Mr. Gring had previously been in business with his brother, J. M. Gring, but left the firm of Gring Brothers in 1910. During 1911 and 1912 he engaged in the grain and feed business and decided to retire at the end of that period. After a year's time he realized that he could not remain idle and secured possession of the Roth company's business.

In speaking of the building situation in Reading Mr. Gring declared that at the present time the greatest necessity lies in furnishing the laboring element with homes. He declared that the average



C. D. MILLER & SON'S PRIVATE SIDING, WITH WAREHOUSE TO RIGHT—YARD EXTENDS TO LEFT OF TRACKS.

builder is constructing residences to sell and builds them of a type which demand a monthly rent of \$25 to \$30, while the houses that are actually needed cannot bring more than \$14 to \$16.

This company handles a complete line of builders' supplies and coal. Mr. Gring has associated with him his two sons and together they constitute the sales organization. With an equipment of four teams he is able to care for the regular business of the company by hiring extra teams as demands necessitate.

## Geiger in Business 24 Years.

The Reading Lime Co. was founded by David C. Geiger, its present owner, in 1890. At that time the yard and office were located on the present location of the yard on Nichols street. Since that time the business has been on practically the same site. One change has been made, however, by the removal of the office to its present location on Eighth street. This is directly in front of the old location and yard and is still connected with the latter. Mr. Geiger takes complete charge of the business and employs one salesman to assist him. Samuel B. Moyer occupies that position.

## J. M. Gring's Yard in Use 65 Years.

The present firm of J. M. Gring Co. was organized in 1897 under the firm name of Gring Brothers. J. M. had associated with him at that time his brother, M. A. Gring, the present owner of A. L. Roth & Co. Mr. Gring declares that his yard at 6th and Canal streets is the oldest builders' supply yard in Reading, having been located at its present site about 65 years ago by A. F. McGowan.

This company's yard occupies about 500 feet frontage on Canal street and a corresponding frontage on the Schuylkill River. From Canal street to the river the property is about 200 feet deep.

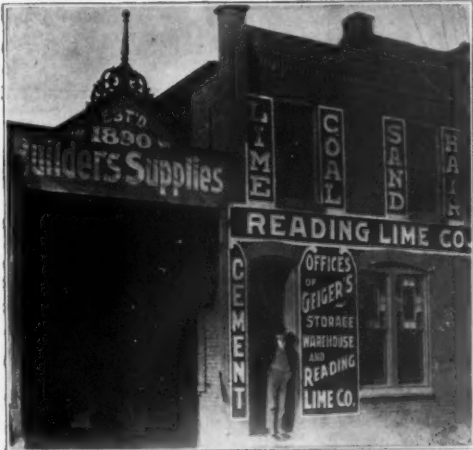
The firm of Gring Brothers was continued until March, 1910, when M. A. sold his interest to J. M.

and the latter in turn took his son, J. Allison Gring, into the office as his assistant. The son is a young man of about 21 years who is taking a firm hold of the sales and office duties and under the guidance of his father will soon be a full-fledged builders' supply retailer. At the recent organization of Eastern Pennsylvania dealers young Gring was elected secretary of the association.

#### SLIGHT DECREASE ON PACIFIC COAST.

##### Seattle Only City Showing Substantial Gain in Building Permits Over Last Year.

Building records on the Pacific Coast show, on the whole, a slight falling off for the month of



HOME OF D. C. GEIGER'S READING LIME CO.

June, though retailers report that the earlier days of July have turned out better. The total valuation of the building permits issued in San Francisco during June was \$1,308,882, or about \$300,000 less than the average for recent months, and about the same amount less than for the month of June, 1913.

In Los Angeles, Cal., the building report for June showed a total valuation of \$1,682,057, or just about the average for recent months, and about \$800,000 less than for the month of June, 1913.

In Portland, Ore., the valuation of the June permits was \$534,435, or about \$150,000 short of the average for the preceding months of the year, and about \$350,000 short of the month of June last year.

Seattle, Wash., shows the only substantial gain of any of the Pacific Coast cities in the matter of building. The June record showed a valuation of \$1,163,165, or a gain of nearly \$125,000 over the preceding months of the year and about the same amount over the month of June last year.

The smaller cities of Oakland, Sacramento and San Diego showed about an average volume of business as compared with the preceding months of the present year, but a considerable percentage of decrease as compared with June last year.

#### MEMPHIS BUSINESS CONTINUES FAIR.

Memphis, Tenn., July 18.—The building supply dealers here are complaining somewhat about getting deliveries on materials. Summer business is fair but not in every respect satisfactory. A good deal of work is going on. Great progress is being made on the J. T. Harahan bridge across the Mississippi river.

J. C. Lovelace, of J. A. Denie & Sons Co., said their trade was holding up very nicely. They look for more even conditions after Sept. 1. Suburban business is also good.

Crump Bros., in the southeastern part of the city, are supplying material for several big construction jobs.

The paving, sewer and municipal ends of affairs in Memphis are quite active.

## Traffic News

### Car Shortage Inevitable.

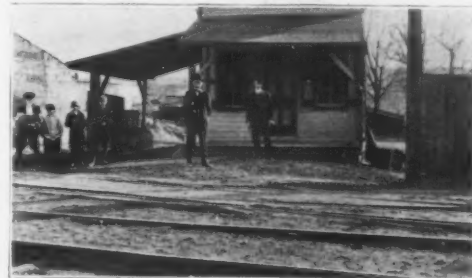
A car shortage is gradually but surely growing near. There is already a tightening up of the supply of available cars and because of the heavy movement of grain, due to the bumper crops, the railroads are rushing empty box cars west. The idle cars in the East are indeed few.

There are 900,000,000 bushels of grain to be moved in the next 60 days and the report of the American Railway Association on July 1 shows that there are but 220,000 available cars. The average car will hold approximately 900 bushels of grain, which demonstrates that 1,000,000 cars will be required within the next 60 days to ship the total amount of grain to be moved.

The question building material manufacturers and dealers should ask themselves is, "Where are the cars coming from?"

Manufacturers with their traffic departments are quick to realize this condition of affairs, but the building material dealer who relies upon the manufacturer to secure the cars for shipment whenever the dealers' orders are secured does not as easily comprehend the seriousness of the present situation. As a result a great number of dealers are going to find themselves without material in the very near future.

There is only one thing for building material dealers to do in a situation of this kind. They should



J. M. GRING CO.'S HEADQUARTERS, WITH YARDS IN REAR AND ON EITHER SIDE—IN FOREGROUND, J. M. GRING (RIGHT) AND J. ALLISON GRING (LEFT).

keep their warehouses continually filled and keep enough material in transit to replenish the warehouse supplies as they are used.

Building material retailers should send their orders for cement and other materials to the manufacturers at the earliest possible moment and in addition there to give the manufacturers as much time as possible in which to ship these materials. In this manner can the seriousness of a car shortage be averted, unless the demand for building materials receives an impetus of such proportion as has never before been heard from. Filled warehouses and materials in transit is the proper way to meet the threatened car shortage.

While the figures of the American Railway Association show that there was a surplus of 220,000 cars on July 1, their figures mean very little, because in the past two years none of the railroads has built any new cars and the damaged cars have materially increased.

Even railroad men state that the country will have a car shortage this fall, claiming that the heavy grain movement will be responsible.

### Rate Decision to Be Rendered Soon.

It is certain that the decision of the Interstate Commerce Commission in the Eastern rate advance cases will be handed down this week. The decision is not expected to cause even a flutter in the stock market, so certain are observers as to the provisions of the ruling.

As has been reported from time to time in *ROCK PRODUCTS AND BUILDING MATERIAL*, the decision will deny the roads a 5 per cent horizontal increase.

It will deny any increase in the present lake and rail or ocean and rail rates.

It will permit slight increase in some class and commodity rates, but will deny increases in the heavier bulk rates.

It will order the roads to discontinue all free service.

It will score the carriers for unscientific business in the past and will recommend that hereafter they operate their roads along sound business lines and not with their eyes on the stock market.

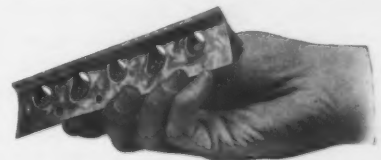
They will be arraigned for permitting their equipment to remain in a crippled state during the dull seasons, when they could have operated their shops instead of waiting until there came a demand for more cars and engines and then operating their shops overtime at an increased expense.

It is almost certain that the decision will contain rulings compelling the railroads to charge for the spotting of cars which has heretofore been done without a special charge. Undoubtedly the greatest sufferers from this car spotting charge will be men interested in the building material business. All of this material is bulky and it does not take much to fill a car. With a spotting charge of one or two dollars a car the expense of the average retail dealer on this one item alone will run into thousands of dollars annually.

Various building material organizations have fought the car spotting charge and did all within their power to convince the Interstate Commerce Commission that such a charge was unreasonable and would work a hardship not only on the building material dealer who owned his sidings as against the man who uses a public siding, but would also affect the ultimate consumer, who in reality is the man who pays the bills.

#### TENNESSEE GRAVEL AND SAND CO. VS. N. C. & ST. L. R. R.

After hearing preliminary arguments in the case of the Tennessee Sand and Gravel Co. against the N. C. & St. L. Railroad, in which the gravel company is protesting against an increase in freight rates on gravel and sand from Estill Springs to points on the N. C. & St. L. line, the Tennessee Railroad Commission has postponed the case. The commission ordered that, pending the further hearing of the case, the old freight rates on sand and gravel be maintained.



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# N. B. S. A.

## The Composite Mind.

Where organizations have been in operation for some time and are doing effective work, it is found that the close association and better acquaintance thereby established between individuals removes bitterness and jealousies. Yet, to tell a man that if he would come into the organization and get acquainted with his competitor, he would grow to like him and trust him and receive help from the association with him, would not be believed.

Those who know of the work of commercial organizations can give numerous instances where these results have been attained and where the circumstances were not peculiar or unusual.

Show us the business man who is doing active progressive work in his line who does not have many problems which make him feel at times as if his line of work was the hardest of any line and he of all men had the greatest reason to become discouraged. You can't do it. Why is it that we have the statement "Misery likes company"? It is because human nature is so constituted that everyone likes to feel that the other person is having just as hard a time as he is. All right. Many a man has found encouragement and inspiration just from listening to the other man's story of hardship endured and obstacles overcome, and he has taken courage and gone ahead, determined to solve his own problems in a more hopeful, cheerful way than he could possibly have done if he had not discovered how hard a time the other man had. Many a man has been ashamed of himself for his whining and complaining when he has seen that the other fellow is carrying a bigger load than he is and doing it with more courage. The ordinary associations of life do not bring out these facts as fully as does the association of men for common commercial purposes.

So far, we have considered it merely from the individual selfish standpoint. But why do people live in communities? and, living in communities, is it possible for them to live unto themselves, alone? Most certainly not. There are problems of general interest which require united efforts for right solution. If it were possible for one man to solve these problems of general interest, it would not be fair that he be required to do so. The thoughtful, ambitious man of today does not want something for nothing. He wants to do his share of the work and to bear his full part of the load. That being true, he must have some means of expression for that desire. The business man in every community is relatively a man of power. When the business institutions unite their efforts, they increase their effectiveness many, many fold.

But looking at the question from another aspect: What man today cares to be known as an ignorant, unprogressive man? Not one. Few men feel that they now have all the education which they desire and many of them feel rather disheartened because they cannot see how they can get better education. But stop and think just a moment. What is it that educates a person? The answer is, "association with your fellow man." Study the lives of the leaders of today and you will find that they have acquired their education year by year just from their associations with men. Every man who joins any organization and takes an active part therein and listens to and thinks of what is said by others, becomes a broader, better, more sympathetic man than he otherwise would be. In other words, he is a better educated man.

The above are excerpts taken from an address de-

livered before the Chicago Association of Commerce by Mr. William R. Moss, on the subject of "Organizations," and appear to be so timely and pointed as to be worthy of repetition to the building supply man, and it is to be hoped that he will avail himself of the opportunity to assist in the campaign that is being waged to effectually better conditions in his line of trade.

## The N. B. S. A. Secretary.

Louis F. Desmond, secretary of the National Builders' Supply Association, is a young man endowed with the association spirit and well qualified to hold the



LOUIS F. DESMOND, SECRETARY NATIONAL BUILDERS' SUPPLY ASSOCIATION.

position. Since his appointment to that position he has labored industriously toward increasing the membership and supplying the new and old members with constant information relative to the activities of the association.

Mr. Desmond is peculiarly fitted for a secretaryship of this kind. He has been actively connected with the traffic department of one of the country's leading railroads and is in a position to furnish information relative to traffic rules and regulations. He has also been connected with the Brick Publicity Bureau of Chicago and knows the desirability and methods of securing favorable opinion for any given line of material.

In the short time that he has held his present position, Mr. Desmond has worked with the field secretaries in an attempt to increase the membership and, as recorded in each issue of ROCK PRODUCTS AND BUILDING MATERIALS, his efforts have not been in vain.

For the first time in years, the National Builders' Supply Association now has official headquarters at Room 1211, Chamber of Commerce building, Chicago, where Mr. Desmond makes his headquarters. He is a

pleasant and congenial fellow and visitors to Chicago are always made to feel at home at the National headquarters. Mr. Desmond realizes that the interest of the individuals are the interests of the association and he is working enthusiastically for the improvement of both.

## N. B. S. A. Notes.

Applications for membership have been received from the following since date of last issue:

Hocking Valley Products Co., Columbus, O.  
Hydraulic Press Brick Co., Chicago, Ill.  
S. S. Kimbell Brick Co., Chicago, Ill.  
Kimbell-Hill Brick Co., Chicago, Ill.  
Meacham & Wright Brick Co., Chicago, Ill.  
Southern Gypsum Co., North Holston, Va.

Applications seem to be coming in at a very much improved rate than has been the case in the past few months. It is expected that the future will continue to show continued improvement.

Members have been notified that Feb. 8 and 9, 1915, have been selected as the dates of the next convention. The meeting place will be the Hotel Sherman, Chicago, Ill. Members are requested to send in any suggestions they may have which will be of assistance in making this convention an assured success.

## Ohio Summer Meeting.

Annual Event of the Ohio Builders' Supply Association Will Draw Large Attendance.

Cedar Point, Ohio, the scene of so many pleasant summer outings, has again been chosen by the dealers of Ohio and the dates selected are Aug. 7 and 8. Every dealer who is a member is cordially invited and expected to be present to take part in the meetings—and just bring the folks along to have a good old-fashioned time.

These particular dates have been chosen because the Retail Lumbermen's Association will be holding their summer convention at Cedar Point at the same time, and a plan of co-operation is to be effected in the matter of mutual interest in defending the lien law recently enacted by the legislature, which is being violently attacked by those who are opposed to the protection that the new law affords to the dealer in building materials.

The new lien law is of vital importance to every man who is engaged in the building material business, and the Ohio Builders' Supply Association considers it as their first duty to help in the retention of the good protective measure.

Retail lumbermen, through their association, have done a great deal in the matter of the new lien law, and their interest is identical in this respect to that of the dealers in builders' supplies. The interests that have always opposed the lien law as enacted are the building and loan associations throughout the state, who did all in their power to prevent its passage in the first place.

Secretary J. C. Neely, by orders of the executive committee, is sounding the bugle call for the assembly of the wide-awake and active men in the trade to take the necessary co-operative action.

We suggest that in view of the heavy attendance likely to turn out on such an important occasion that reservations at the Breakers, Cedar Point, be secured promptly for Aug. 7 and 8, for the entire membership ought to be on hand.

# BUILDERS' SPECIALTIES

## Dealer-Agent Distribution of Specialties

By R. P. CLARK.

[The following paper was read by Mr. Clark, who is sales manager of the General Fireproofing Co., before a recent convention of the company's salesmen at Youngstown, Ohio.—Editor.]

The three essential and fundamental factors in successful dealer-agent distribution are: Confidence, co-operation, and service—confidence in the house, in the salesman, and in the product of the house which the salesman sells; co-operation signifies mutual obligation, a partnership of mutual responsibility; service is the transaction of business in a way that will leave the cleanest, clearest impression of ability of performing labor for the benefit of another.

We assume that we have a tangible thing to exchange for which there is in some degree a legitimate demand at reasonable prices which can be profitably sold to the user through the dealer.

Inasmuch as we distribute over 85 per cent of our products through dealer-agents, who have either the exclusive selling privileges or receive commissions on sales made direct by us in our agent's territory, it is evident that the first thing to consider in discussing the subject of dealer-agent distribution is the confidence in the house.

### Confidence in the House.

A dealer will not invest time or money in a line unless he is sure the manufacturer is going to give him a square deal.

In securing new agents, this is absolutely the first step—it's very important, don't overlook it or classify it as "hot air." Every day the realness of this is emphasized by every student of this question.

Your customer will be influenced in direct proportion to the amount of enthusiasm which you show for your line and the house which you represent, and if you make it a business to boost the house, it will inspire confidence in the minds of your agents.

If you are glad that you are identified with as clean a bunch of fellows as can be found in any concern anywhere, tell the other fellow about it. He will prefer to do business with an organization rather than one man. He will have more confidence in your promises when he knows there is an organization back of it.

Disregard the ethical phase of the question entirely that "a square deal is the best policy because it's the right policy and that right will prevail." Suppose we approach it from another angle, which is more practical or less like theorizing. Is it good policy to assume that we are so clever that we can "put one over" 85 per cent of the source of our "bread and butter" without our customers losing confidence in us? Can we afford to take any chances? The law of averages then will tell us that the square deal is the best policy because it is the policy that pays the biggest dividends in dollars and cents, to say nothing of peace of mind.

Suppose we explain to our prospective agent how we get our business and how long we have been getting it in this way. He will then not ask any questions regarding our policy of square dealing, but if he wants references tell him that we have over 150 living enthusiastic references from Maine to California and they're the biggest asset that the company has at the present time.

When the dealer has reached the point where he has confidence in the house, he will then assume that the salesman ought to be as good as the house

whose policy he reflects and we will have by association secured his confidence in the salesman.

### Confidence in the Salesman.

We will not attempt to discuss in detail that phase of salesmanship that can rightly be classified under this heading. It is an acknowledged fact that the successful salesman is the one who best knows himself, his line, and his buyer and applies his knowledge. Without these, it is improbable that the salesman will retain the confidence of his agent. Occasionally a salesman will bluff a customer rather than admit his inability to accurately answer the questions which are put to him. This is a serious mistake with any customer but absolutely suicidal in agency development.

It would be better to lose an immediate order than secure it by any means that would leave an agent dissatisfied.

Dealers are sometimes slow to co-operate with the manufacturer who has a reputation for living up to his promises, because of the dealer's experience with the unscrupulous salesman who makes promises on his own authority which his company cannot fulfill, or the sincere salesman who promises service which his company isn't capable of giving.

We must be careful, first, to promise nothing the company can't or isn't willing to do and, second, to be sure the dealer doesn't misunderstand what you intend to do and, third, that your instructions to the home office are explicit and clear.

I am pleased to say that we have very few misunderstandings with our agents, but in the large majority of cases, when these misunderstandings do arise, it is because the salesman's instructions are not clearly defined.

We intend to back you up at least the first time, even if you are wrong, or your requests are unreasonable, but it is our experience that sometimes a salesman makes promises that are not feasible or practical. You can avoid disappointment by consulting the home office first, frankly tell your dealer that his request is a little unusual, and that you will write the home office. This treatment will stimulate confidence and co-operation, because the dealer will see that you are not inclined to promise everything to get his business.

### Confidence in the Goods.

It is very doubtful whether the dealer can secure satisfactory results either for himself or his principal without confidence in materials which the manufacturer makes. The salesman's position becomes that of a sales manager's, whose duty is to sell his agent and his agent's selling force. If you are unable to do this, you can promise yourself that you, not your agents, will make most of the sales that are made in the agent's district.

Most of the best established goods are well advertised. While this doesn't necessarily follow that the best advertised goods have the highest merit, it is pretty safe to assume that the inferior article will not stand the acid test of an extensive and continued advertising program. If we are willing to spend from \$40,000 to \$60,000 to advertise our line, it at least indicates self-confidence which stimulates confidence.

Enthusiasm—the main-spring of a convincing argument—is an expression of confidence. It is difficult to imagine a successful agent who is not enthusiastic. When doubt creeps in the door, en-

thusiasm flies out the window, and doubt and confidence are never found in each other's company very long.

### Co-Operation.

Co-operation indicates mutual obligation and responsibility; it acknowledges a partnership which is a community of interests. Co-operation is a word very much overworked; it covers a multitude of sins and virtues. It is abused and misused. Dealers tell us that 90 per cent of salesmen refer to co-operation as if it were the opening and the final word to the order—the magic word that dispels, with one stroke, all doubt as to the seller's intention or attitude toward the dealer. I would refer to co-operation here only as a duty which the agent owes to the manufacturer, an obligation on the agent's part to perform his share of work, to carry out his part of the burden, which is to conserve and take advantage of every opportunity which the agent receives from the manufacturer as a result of the manufacturer's service.

As to the manufacturer's part in this partnership built on co-operation, we will discuss it as "Service."

There seems to be quite a feeling of distrust on the part of many dealers; and this distrust finds expression in their not being willing to co-operate with the manufacturers in a national advertising program. The reason for this is apparently that some of the largest manufacturing concerns frequently lose the dealer's good will by using "the big stick;" that is, dictating the dealer's policy which naturally they resent. We should be careful not to coerce our agents, but adopt President Wilson's "Hesitation Waltz" policy, which no doubt in the long run brings the desired results without jeopardizing our agent's good will.

When arriving at reasonable selling prices with our agents, be sure to approach from the agent's standpoint. His point of contact will always be the profit that there is in our line. We should be careful to stick to this angle. When an agent tells us that his cost of doing business is 20 per cent, for illustration, that he desires to make a profit of 10 per cent, do not think him unreasonable. The expenses of the average grocery store run from 14½ to 16 per cent, the average vehicle shop 17 per cent, hardware store 19 per cent, furniture 23½ to 25 per cent, jewelry concerns 25¼ to 26 per cent. It is not unreasonable to suppose then, that the building supply dealer, who carries the local contractors on his books for 30, 60 and 90 days, and often longer with considerable credit risk, finds his cost of doing business rather high. We should not forget at any time that unless our agent is making reasonable profit out of our line, he will lose interest.

In figuring profits too, it is well to bear in mind that the most generally accepted method is to base the expense of doing business and the profits on the selling price. It can be worked out as follows:

Let 100 per cent equal the selling price; let 30 percent (in the instance where the agent's expense of doing business is 20 per cent, and he desires to make a profit of 10 per cent) equal the selling expenses and the profit.

Then the difference between the two, or 70 per cent of the selling price equals the cost, or if BB27 painted Herringbone lath delivered at his town is 12 cents per yard, and 12 cents per yard is 70 per cent of the selling price, then the selling price is 17.14 cents. This means that 3.43 cents per square yard of the selling price goes to the cost of doing business, and 1.71 cents is his profit.

This does not mean that every agent expects on all sales to buy at 12 cents and sell at 17.14 cents, but it does mean that when we discuss selling prices, profits and costs with our agents we should not compare the 5.14 cents with the 12 cents and argue that the agent is making 43 per cent which is a fabulous profit. A very careful analysis of the facts of the case will indicate to you beyond any



question of doubt that your promises are not very well taken.

These are simply the points which the manufacturer's representative should remember in discussing details with the agent whose viewpoint of selling cost and profits is not taken from the same angle as the manufacturer's perspective.

#### Service

Derivation: Noun, from the Latin "servitium;" meaning the act of performing labor for the benefit of another.

Modern definition: It is difficult to define in absolute terms the meaning of this word. We are to consider the meaning of the word "service;"

First, as applied to an employee and an employer.

Second, the relation of the buyer to the seller.

The employee who looks upon his work as an opportunity to give more than he receives, who bases his expectations of reward on his confidence in his company to recognize at the right time and in the right way his worth, to unselfishly promote the company's welfare without considering the immediate returns is true service.

Considering service as a relation of the buyer to the seller in the commercial world, usually signifies almost every thing that has any relation to the exchange of commodities except the sale itself. This is the opposite of the old Roman proverb: "Caveat Emptor," which means "Let the buyer beware." In other words, the principle of service in its more modern meaning is "Let the seller beware."

Service is the method of doing business—the principle on which the business is transacted. It applies not only to the method of transaction such as proper packing, prompt shipments, correct invoicing and courteous collecting, but the careful analysis of the customer's needs before the sale is made and in many businesses, such as ours, proper co-operation in assisting customers in disposing of the materials sold.

In addition to this, service also means such apparently intangible things as a willingness or desire to do all reasonable things for a customer, to be tactful, to do things graciously, to be big enough to regard the customer's interests as well as our own, not to count the profit of each transaction but to look ahead into the future.

When we begrudgingly perform an act so that "the party of the second part," as Blackstone describes the "other fellow," has no desire to continue business relations with us, we term it "poor service." When we are forced to wait fifteen minutes on a corner for a car that is scheduled to run every six minutes, we complain of the service. When we order seven-minute eggs for breakfast, we say the service is poor if the eggs are placed before us nearly raw. When the hotel doesn't forward your mail correctly, you have a right to complain of the service. When you carelessly overlook details of a customer's financial standing, the credit department says the sales department doesn't render good service. When you fail to study your customer's requirements and sell him material for which he cannot find a ready market, you are not giving good service. When salesmen consider their daily work as painful drudgery, to be reluctantly endured, they can never realize the meaning of true service.

So, good service is the act of doing a thing accurately, willingly, graciously, honestly, cheerfully, intelligently and unselfishly.

This sounds like preaching or theorizing. What we want to drive home is that the most vital force in the business world today is the honest desire to serve. It is to this factor that the largest commercial companies in the world attribute their success. It's the most talked about thing today in business life; you read it in letters; you hear it discussed in the office, emphasized by the salesman and it takes a leading place in all analysis of business success.

The essential thing to do is, first, to thoroughly understand the principle of service and its relation to selling; second, to put these ideas into practice; third, to advertise and sell this service to our agents.

How do other commercial companies regard this service idea? Is it a vital every day part of their work? Do they endeavor to make every fibre of their organization feel and express this idea of service in their duties?

A leading advertising man in Chicago expresses it in this way: "By service we assume that our salesman is paid by the customer of the house, not by his employer. If every man and woman in your organization felt that everything he or she does was a matter of actual service to a customer of your house, and if this thought could be constantly in mind, would it not raise the standard of the business efficiency beyond anything we have yet dreamed?"

A big steel company, in one of its many letters addressed to the trade, writes as follows: "Our stock list which is issued regularly twice a month for the convenience of those customers who are interested in stock shipments represents but a single feature of the service that we are giving our customers."

A wholesale grocer says: "If his salesman's attitude when he calls on a grocer is to treat him, not as an individual, but as a trustee of a group of 60 to 100 families, how much greater would be the results of his efforts? He would not only adapt the line of his selling to the self-interest of the grocer, but would educate the grocer to an appreciation of his own responsibility."

A large paper house in Cleveland defines service as "the idea of extending to paper users the use of our information bureau at all times; giving them without cost or obligation the same information about the qualities of paper and the preparation of dummies as has heretofore been supplied only to the printing trade. In other words, we are trying to bridge the gap between ourselves as a distributor and the ultimate consumer."

A successful merchant defines service as becoming more interested in your customer than in the sales and explains by saying: "That the time has gone by when you can be successful by being a business man with one side of you, and a human being with the other."

Mr. George H. Eberhard, of San Francisco, says: "Service means to be tactful, to do things graciously and to do them well. It's a part of the science of service to do business in a way that will leave the cleanest, clearest impression of ability to serve so that the customer will want to purchase again and again."

Scully Iron & Steel Co., of Chicago, at the expense of half a page advertisement delivers this message:

"Mr. Steel Buyer, Everywhere: Business nowadays is service. That is the new idea—don't ever lose sight of it. Modern business is impossible without human interests running through it. It is not our idea to sell you a bill of steel and then lose sight of you. We want you to be satisfied with every purchase you make, and we guarantee that the Scully service your order will receive will result in its being shipped with such accuracy and dispatch that you will feel warranted in favoring us with a continuation of your patronage.

"Scully service means economy—it eliminates delay. Our entire organization realizes that they have established a reputation for speed and accuracy. This means a great deal to us. It means a great deal to you when you need some steel shipped immediately on that 'rush job.' Remember, we have a complete stock of everything in the steel line in our warehouses. This, combined with the best equipment for handling, makes Scully service possible. Yours for service, Scully Steel & Iron Co."

So you read it between the lines of a letter

soliciting your business and the general impression and the attitude of salesmen in every phase of the transaction, from the advertisement which attracts your attention to the dunning letter of the collection department.

If we are to apply this vital force to our business, it is essential to analyze it carefully and thoroughly.

Our experience in distributing our products through dealer-agents tells us that the agent is more interested in service than low prices or long terms or both. First class service, plus high prices (I don't mean prohibitive prices) and short terms, can produce more satisfactory results than low prices and long terms and no service. Price and terms are details that adjust themselves at the proper time.

Before we put these service ideas into practice suppose we take an inventory. We should understand and appreciate the service that we are giving.

Let us first assume that our service commences at that point after the dealer has signed up as our agent.

Local stocks are a necessity. Your contract, written or oral, specifies that a reasonable stock should be carried at all times. You have your first chance to give real service. You are called upon to assist your agent to buy intelligently. You, who are supposed to know what the market will require, can make a good friend and a permanent customer by recommending a light, handy stock that the agent can turn over quickly, or you can jeopardize your agent's enthusiasm by tying up ten times your share of your agent's capital in a slow moving stock. If you oversell your agent, it is because you are more interested in the sale than you are in your agent, which is poor service, because it's selfish service. This part of our service is a matter of personal judgment on the part of the salesman. It is nothing which the company can point to with pride, except to say that we do take considerable pride in the fact that our salesmen have apparently learned this lesson. By the way, I think there is considerable difference in overstocking an agent and over-obligating an agent to stock. I believe it is good judgment to get an agent to over-contract; it's another way of getting him to strive for a quota. The higher the quota within reasonable limit, the greater the likelihood of his getting maximum results. Then again, it's like a promissory note—it obligates the agent to a certain volume of business. I would like to have every agent obligated to a certain quota, based on an accurate analysis of local conditions. When agencies are transferred, it is not unreasonable to expect that results will equal at least the previous agent's sales, building operations being equal.

Discourage your agent from dividing his lines, in making up his order. Explain to him that you can afford to call on him or assist his organization in closing any definite prospects, in direct proportion to the amount of business the market yields. The more business your agent gives you, the more frequently can you give his market your personal attention.

Sell him on our advertising. Explain to him that the buyer is more likely to give an audience to a salesman selling a well advertised line than one representing a line not advertised aggressively. Some one likens advertising to a self-starter of the sales auto. It saves the salesman the trouble of cranking the blamed thing.

We extend to every new agent the service of our preliminary sales department in announcing to the trade the establishment of the agency. This service consists of circularizing every architect and the leading contractors. We have frequently sent out at regular intervals as many as six letters (where the market would justify the expense) informing the trade of the establishment of a new agency. We supply each agent with as much printed matter and samples as the agent will distribute judiciously.

Our preliminary sales service even goes a step further: We will mail printed matter or samples.

to and correspond directly with the prospect on any definite operation or on general educational work. Through our many agencies, each agent can be a part of this service idea if he will occasionally assist the other agent when any person such as the architect, owner, or contractor is located outside of the agent's territory. When this plan for any reason is not feasible, our salaried representatives will work for the agent.

It should be continually remembered that when a salesman receives a request to interview some one connected in some way with an operation outside of his territory, that his whole-souled co-operation with this request has a vital moral effect on the agent, regardless of the outcome of the particular work involved.

We believe, however, that some of our larger agents will be called upon for assistance more frequently than they will ask for it, so that the general plan of sharing the commission on a sale with the other fellow should be encouraged.

Any agent who wishes it will receive from us as published, memoranda of new constructive work contemplated in their territory. Some agents request it; others do not. Our advertising department will serve the agent by supplying, gratis, cuts of materials or buildings for illustrative purposes. We will even prepare the dummy for the agent, and from what I have seen, it is quite evident that our agents are not aware of this or have sublime confidence in their own ability. I'm afraid it's the former.

Some of the closest business friendships we have made have been the result of assisting our agents in securing new lines. It is frequently possible for us to personally interview the manufacturer whose line the agent desires. One case that suggests itself to me now is where we secured for an agent by personal solicitation an extra commission of \$2.00 a ton on sheets which our agent was selling for a large steel manufacturer on commission.

Our credit department is continually supplying credit information quite in excess of the usual requirements of ordinary business courtesy.

We have prepared with great care, loose-leaf bulletins on construction costs, etc., that are an invaluable aid to the education of our agent's salesmen. This educational feature has been carried even a step further. We have offered many of our larger agents personal assistance in the education of their salesmen if they would arrange to have the salesmen come to our factory. This offer has been taken advantage of by several.

Along these lines is another service feature, namely, the plan that we have inaugurated by keeping one or two employees in the course of training who would be qualified to go into the field under the agent's direction either permanently or temporarily.

We have supplied our agents with a series of letters on our various products, which will assist them in forming their sales letters. It is not expected that our agents will use these letters in their entirety, the idea being certain paragraphs bringing out certain features can be incorporated in any letters that they might write.

I know in a general way, and in a number of specific cases, that our service has so far overshadowed everything else that the proper adjustment of prices and terms were treated by our agents as mere details to be thrashed out at some future date. That is, the prospective agent was so impressed with our ability and willingness to do the right thing, at the right time, that it was delegated to the background as a detail.

We have often spent hours endeavoring to think out some novel and unique selling argument that will emphasize those qualities of our products that characterize them from competing products. Now if our service can be substituted for our materials and sold as a commodity, and if this service of ours is a distinct improvement on our competitors, we are making a serious error in not featuring our

service as well as linking it up with our products.

This brings us to the point of advertising and selling our service. This needs little discussion. If the other fellow wants service and we have it, tell him about it—that's advertising. If he hasn't quite caught the idea and doesn't appreciate the value of it and its relation to his cost to sell, then it's up to you to convince him, which is selling our service.

Our agents are coming to visit us for a couple of days; and if we can't convince our agents that we have an organization that can give them the service which they expect, we will have no more conventions with our agents.

It would be most unfortunate if we were to "rest on our oars." The other day one of our Southern friends told us "our service was very nearly perfect." Of course we don't believe this, though the agent might have been sincere in saying so. Eternal vigilance is the price of good service as well as liberty. One of our agents told me the other day he insisted that his salesmen advise him of every complaint, and further he knew it was impossible to run his big organization without kicks—or, in other words, without poor service occasionally. I am not satisfied that our service, as good as it is, is as good as it can be made.

A year ago we decided to spend \$35,000 more to improve our service than the year previous. We spent it, too, and it paid us to do it. This year we are going to spend more than last year. We don't expect to get it all back this year, but if we don't get it back it will be because we are poor planners or our execution is bad.

Because I believe that nothing can remain stationary; that we must progress or go backward—I asked you to send me suggestions as to how our service could be improved.

As I carefully analyze the service suggestions which you have sent me, I find a gratifying lack of any tendency to complain about our service in the past. Putting this in another way, you will conclude that we have a guilty conscience and are agreeably disappointed not to be told about our shortcomings. Now this is hardly the case.

The most hopeful sign which you men on the firing line would notice if you stayed around here very long would be that the factory thoroughly realizes just what it failed to do last year, and also that it has carefully made preparations to avoid the mistakes of 1913, and to do the things which it left undone during the past year.

Before we come to this subject, let me say a few words in behalf of our factory. As you go through the factory you will see for yourself the change that has taken place. Remember these four things:

First, that we have moved into the new warehouse every bundle or crate of material.

Second, that the shop has moved almost every machine in the plant.

Third, that we have had the largest year in the history of the company.

Fourth, that we have worked 22 hours a day in order to do all of this.

These are not excuses; they are reasons why we feel mighty pleased with what we have done here in the factory last year, yet at the same time we are alive to the necessity and confident of our ability to do better.

The sales department pushed the shop last year, but it was like hitting a man who is down (nothing to boast about); they were crippled, but we will have to "go some" this year to cause them any embarrassment. The shop is in training and is going to keep right at our heels.

We want our salesmen to be as proud of the shop service as we expect to be of the sales service. If you give the shop the same co-operation which the shop gave you last year and will be able to give you this year, there will be very few unpleasant post mortems. So much for the service of the operating department.

In coming back to those "service" suggestions

which you sent me, and in going over them carefully, I notice that, with very few exceptions, we are trying to point out how the "other fellow" can improve the service. Now, of course, we are glad to receive suggestions; in fact, we expect them; and the suggestions which you send in will be carefully considered. The shop and the office confer with each other and among themselves with reference to the important suggestions which come to us from time to time, but the men on the firing line do not have the opportunity of getting together and discussing these things among themselves, except at a convention like this; so let us devote as much time as possible to a discussion of those service ideas which have to do more with the work in the field.

I spoke about the indirect educational work which we were doing among our agents' salesmen. Now, because our line is complicated as compared with cement, lime, plaster, brick, etc., it gives us an opportunity to present new and interesting phases of the selling of our products at all times, and this opportunity should not be overlooked. We can educate our agents' salesmen in a very direct way. If there is any doubt about it in your mind, let me read the following letter to you:

"Gentlemen—At the time that Glazier was in Omaha, we prevailed upon him to stay over on Tuesday evening to talk to our salesmen on Herringbone lath and "Self-Sentering." We have a meeting every two weeks of all our salesmen and yard men to take up the matter of how to increase sales on different materials, different ways of handling deliveries, approaching customers, and things of that kind, and we thought it would be a good idea to have Glazier give a general talk on materials in your line. This was done, and we want to report that same was found very interesting and some very important selling points were brought out, which will be found very valuable by our city men in selling metal lath. Yours very truly—Sunderland Brothers Co."

You will find that a large percentage of our agents have no attractive display of their goods. You can bring them closer to us by helping them solve some of these problems, such as suggesting a definite plan which will fit in with the agent's facilities for the display of his entire line, even though he cannot prominently display our products. Whether our line is featured is not essential, though of course it is desirable.

Post yourself regarding the methods used by the most successful supply dealers as to the handling of their sale force and method of following up preliminary prospects. Some agents divide their line into various departments, with a department head responsible for the results of the commodities classified in that particular department.

Other agents carry out this idea in a more modified way; i. e., try to educate the majority of their salesmen on all of their lines and then divide their customers among the different salesmen. Learn all you can about the methods adopted by the most successful agents in your territory, so you can discuss this with your agents intelligently and sympathetically.

Learn as much as you can regarding the recent and new legislation which affects the building material business, such as lien laws, employers' liability—and, if your agents happen to be so lucky, why not the income tax?

Price agreements may be illegal, but there is nothing in the statutes that prevents one business man from persuading a competitor that price slashing is suicidal. One of the most successful agents we have publishes a complete price list every week, and when this agent hears of a competitor cutting and slashing prices he goes to his competitor and tries to convince him of the foolishness of it, and this plan is working out in a large number of cities. This agent said to me about a week ago, "Show me a city where local supply dealers do not have any confidence in each other, and I will prove to you



that they are making no money." I believe there could be no better way to help your agent than by showing him a way of getting more money for his goods. There is no better way of trying to get more money for his goods than by knowing his competitor well enough to have entire confidence in him when the buyer informs his salesman that the order was placed at a lower figure.

Make it a point to understand thoroughly the detailed workings of at least one successful credit association—get a copy of the constitution or by-laws. This idea has brought dealers together when all other ways have failed.

Mr. Turner, our publicity manager, has been working out several service ideas, the success of which will largely depend upon the co-operation of you individual salesmen.

The biggest and largest service which you can render your agent and your company is to establish a sympathetic feeling between your agent and your company, and the personal element enters here very strongly. Quite frequently the only communication that exists between the manufacturer and the distributor, whether he is retailer or jobber, is the billing of goods, correspondence regarding complaints, adjustments, or letters by the manufacturer offering the dealer "heartly co-operation" and like expressions, which naturally fall on the dealer's deaf ears, as he has heard them so frequently before. We need the dealer and the dealer needs us, and any service idea that does not recognize this "community of interests" is going to lessen the dealer's initiative energy and capability.

Finally, in planning and executing these service ideas, do not always jump at the conclusion that if the dealer does not fall in enthusiastically with the plans as you have outlined them, he is failing to co-operate with you. George L. Lewis, after a four years' investigation of the relations existing between dealers and manufacturers, says that "Dealer co-operation, as it is interpreted and practiced now, is the act of the dealer carrying out the manufacturer's plans. It should be reversed. The manufacturer should be the one to co-operate with the dealer in his (the dealer's) initiatory selling activity."

Just one more word: It seems to me that we are entering on an era that has unusual significance to us. It is my firm conviction that the average builder supply dealer is going to depend a great deal more upon specialties for his bread and butter and less on staples or commodities than he has in the past. Though I am not attempting to be a prophet, I cannot help but see the handwriting on the wall which tells me that the manufacturers of some staple commodities, who maintain selling organizations, are going to compete with each other, and perhaps eliminate the dealer entirely on large and highly competitive work. From this do not conclude that I think the dealer is a necessary evil and not a valuable adjunct to the manufacturer's plan

of distribution. Especially in our line and the large number of allied lines, in my estimation, the building supply dealer is just as necessary to the manufacturer as the grocer, but I believe that the average builder supply dealer has, in the past, looked with apparently considerable indifference on the manufacturer who is promoting building specialties or, to be more charitable, has taken more interest in the staples. I think this is changing very rapidly because of the change going on, on the part of some large manufacturers, who, in their effort to secure their share of the business, are in many cases eliminating the dealer.

Our policy on dealer distribution should be so carefully defined that there will be no question or doubt in the minds of our distributors exactly where we stand on this very important question. There is a growing tendency for dealers to get together and discuss questions of this nature in associations, national and local, but the time has gone by when it is necessary for the manufacturers to use such an association to voice their sentiments. The real test of this policy as I have outlined it depends almost entirely upon the every-day living demonstration of the principles which we have agreed upon.

### Mixing of Mortar Colors.

The demand for mortar colors is becoming greater every day. Not only are dealers and contractors taking to the artistic methods of laying brick in colored mortar, but building owners are realizing the attractiveness which may be secured through the use of the various mortar colors now available.

Believing that the retailers of mortar colors would benefit from information concerning the mixing of these materials, the Ricketson Mineral Paint Works of Milwaukee, Wis., is supplying them with this information.

"The amount of coloring needed varies with the materials used and the shade desired," says Mr. Frederick C. Bogk, secretary and treasurer of this company. "For mortar, the following is approximate: For laying 1,000 brick with spread joints in red, brown, buff or purple, use from 50 to 60 pounds of color to two and one-half bushels of lime and one-half yard of sand. For buttered joints, use 35 pounds of color. For dry black, use from 80 to 100 pounds. For laying 1,000 pressed brick with spread joints, using black pulp colors, take from 40 to 45 pounds of black pulp to two and one-half bushels of lime and one-half yard of sand. For buttered joints, use 25 to 35 pounds of pulp.

"Slaked lime should be allowed to cool not less than 48 hours before adding to the mixed sand and color in making mortar.

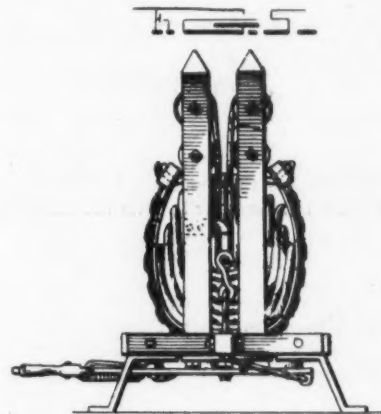
"Always mix the colors with dry material. The more thorough the mixture, the less coloring you will need."

The Ricketson Mineral Paint Works are putting out six different colors for brick, mortar and cement work. They are: red, brown, buff, chocolate, purple and black, and from these, odd tints can be secured.

The Ricketson Mineral Paint Works prides itself on the permanency and coloring strength of its mortar colors. The company has been in business 30 years, and its constant growth is a sure indication of the quality of its goods.

### Invents Sack Baler.

Meeting continually the undesirable features connected with the return to the mill of empty cement sacks, Alva B. Wright, of Ramsey, Ill., set about to find an easier and quicker method of bundling sacks than that in common use among building material re-



SACK BALER CLOSED AND BAGS SECURELY TIED.

tailers. The result of his efforts is shown in the accompanying illustration, for Mr. Wright has designed and patented the "Economy Sack Baler," which is considered to bundle either cement or plaster sacks and arranged to accommodate 50 sacks to the bundle. He claims it is of very simple construction, any part of which can be replaced by a common laborer. The machine weighs 25 pounds and can be carried to any job and easily handled by one man.

With the "Economy" sack baler the bundles may be so closely rolled and tied so tight that they become quite rigid and will support their own weight without any sagging. The advantage in having bags tied so tightly can be readily appreciated by retailers who have had experiences with railroads, due to the rough handling given them by railroad men. By using strong cords or wires to tie the bundles with this machine it is impossible to scatter the bundle. Alva B. Wright is a son of J. J. Wright, a building material dealer of Ramsey, Ill.

## Red, Brown, Buff and Black



**MORTAR  
COLORS**

The Strongest and  
Most Economical  
in the Market.



Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

**CHATTANOOGA PAINT CO.**  
Chattanooga, Tennessee

WHEN YOU ABSOLUTELY KNOW THAT

## Ricketson's Mortar Colors

are pure and brilliant in tone, economical in application and a permanent guarantee against fading and washing

**Why not INSIST on having them?**

They are the acknowledged best for all uses—Mortar, Brick, Cement, Concrete and stone. Red, Brown, Buff, Purple and Black.



**RICKETSON MINERAL PAINT WORKS, MILWAUKEE, WIS.**

The individual or company who uses the reliable trade paper as a medium for greater publicity for his products helps not only himself but encourages the constant warfare for better conditions in the trade as a whole. ARE YOU ONE?



The DEALER is offered  
**CALVERT MORTAR COLOR**  
for its TRUE WORTH

To Himself, the Builder, the Owner and the Public  
By its only maker

**JAS. B. MACNEAL & CO.**

DEPT. R.

Warner & Wooster Sts., BALTIMORE, MD.

Sold to Dealers only A Trial WILL convince you



Stained with Cabot's Shingle Stains and lined with Cabot's Sheathing Quilt. Robert W. Spencer, Jr., Architect, Chicago

## Cabot's Building Specialties

Cresote Stains or Shingles, Siding, Clapboards, Trimmings, Boards, and all other Exterior Woodwork.

Waterproof Cement and Brick Stains for waterproofing and artistically coloring cement and brick buildings.

"Quilt" for lining houses to keep out cold or heat, for sound-deadening in floors and partitions, and for insulating cold storage and refrigerators.

Conserve Wood Preservative for preserving Posts, Planks, Sills and all other exposed timbers. Mortar Colors, Protective Paints for Metals, Waterproofing compounds, etc.

**SAMUEL CABOT, Inc., Mfg. Chemists**  
BOSTON, MASS., U. S. A.

1133 Broadway,  
New York

24 West Kinzie St.,  
Chicago

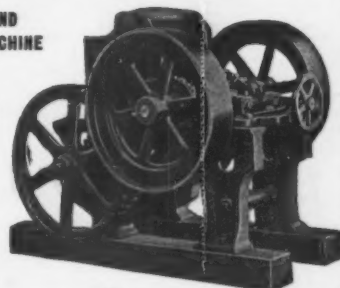
## MARTIN STONE CRUSHER AND GRINDER

BUILT IN 4 SIZES

IS A SAND  
MAKING MACHINE

Maximum  
Capacity  
No. 2  
25 Tons  
Daily

Maximum  
Capacity  
No. 4  
50 Tons  
Daily



No. 2 Receiving Opening 12x5 inches  
Weight 1,800 lbs. 3 Horse Power

Guaranteed and sent on ten days' working trial, **send in your Order** and pay after you have tried it out.

Limestone, Lime, Fieldstone, Flint, Marble, Granite, Sandstone, Oyster shells, Rock, Etc., can be reduced at one operation to the fineness of sand, or to  $\frac{1}{2}$ ",  $\frac{3}{4}$ ",  $1$ " or  $1\frac{1}{4}$ " for roads, concrete materials and fertilizing purposes.

**H. MARTIN BRICK MACHINE MFG. CO.**

Lancaster, Pa., U. S. A.

Crushers built in larger sizes also

## Anchor Brand Colors

For Mortar, Cement and Brick  
Brown, Black, Red and Buff  
Strongest and Most Durable

Manufactured by **C. K. Williams & Co.**

Correspondence Solicited

Easton, Pa., U. S. A.

**How Well Will It Sell?**  
Don't overlook the resale value of the house you are going to build. Five years from today you may want to dispose of it and then its worth will depend upon its appearance. And prospective purchasers look first for cracks and roughness in the walls.

**Kno-Burn**  
Expanded Metal Lath  
makes inside plaster and outside stucco permanent.

Plaster lasts as long as its base. Kno-Burn can never rot away because it is a metal lath. Plaster cracks when temperature changes cause it to expand and contract sufficiently to break its bond with the lath behind it. Kno-Burn expands and contracts with the plaster. Ask your architect.

"Practical Homebuilding," our new booklet, covers all this—and a great deal more—in detail. It contains house plans, comparative costs, numerous photographs and a wealth of building information that solves the very problems that are puzzling you.

Send ten cents to cover cost of mailing and ask for Booklet.

**North Western Expanded Metal Company**  
Old Colony Building Chicago, U. S. A.

## Good Will Makes Selling Easy

Doctors, Lawyers, Educators, Executives, Engineers, Architects, Builders, Contractors, Farmers, Manufacturers, Salesmen, Office Managers, Merchants, Housewives—these are a few of the many classes that read and believe in our advertising and they are

## Folks that Buy What They Believe In

If you are the dealer in your town that handles



They will buy of you. If you have investigated "KNO-BURN" you know that it is made right of the best of materials. Builders and Contractors that use it upon your recommendation are always satisfied with the results they obtain. A great many more architects are specifying it every month.

Now link up to "KNO-BURN'S" quality and reputation with the trade, the fact that we are spending many thousands of dollars to establish it with the home owner—the man who pays

the bill. Can you find a better product to sell?

KNO-BURN Expanded Metal Lath comes in three types—KNO-BURN for interior work, KNO-FUR with the "U" shaped rib that does away with furring and sheathing for outside stucco, and XX Century Lath that is proof against acids. They are backed by the reputation of the largest exclusive manufacturers of metal lath in the world.

Write today for Booklet 295 "Metal Lath for House Construction" and Dealer's Prices.

**North Western Expanded Metal Company**  
929 Old Colony Building Chicago, U. S. A.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS





# CLASSIFIED BUSINESS DIRECTORY

## BAGS AND BAG TYERS.

Curry Mfg. Co., J. P. (bag tyers).  
Faberhill Mfg. Co. (bag tyers).  
Jaite Company, The.  
Urachel Bates Valve Bag Co.  
West Jersey Bag Co., The.

## BELTING.

H. W. Caldwell & Co.  
Chicago Belting Co.  
Dull & Co., R. W.  
B. F. Goodrich & Co.  
Imperial Belting Co.  
Stephens-Adams Mfg. Co.  
Webster Mfg. Company.  
Weller Mfg. Co.

## BRICK.

Belden Brick Co.  
Hocking Valley Clay Co.  
Metropolitan Paving Brick Co.

## BRICK CLAMPS.

The P. D. Crane Co.

## BRICK PAVING.

Alton Brick Co.  
Harris Brick Co.  
Metropolitan Paving Brick Co.  
National Paving Brick Mfrs. Assoc.  
Thornton Fire Brick Co.

## BUCKETS, DUMPING AND GRAB.

Atlas Car & Mfg. Co.  
H. W. Caldwell & Co.  
Hendrick Mfg. Co.  
McMyler-Interstate Co.  
Owen Bucket Co.  
Willis Shaw Mch. Co.

## CABLES.

American Steel & Wire Co.  
Dull & Co., R. W.  
Sauerman Bros.

## CASTINGS.

Edgar Allen Amer. Mang. Steel Co.  
Taylor-Wharton Iron & Steel Co.

## CEMENT, HYDRAULIC.

Carolina Portland Cement Co.

## CEMENT, PORTLAND.

Atlas Portland Cement Co.  
Canada Cement Co.  
Carolina Portland Cement Co.  
Chicago Portland Cement Co.  
Coplay Cement Mfg. Co.  
Dexter Portland Cement Co.  
French, Samuel H., & Co.  
Grant Port. Cement Co.  
Kansas City Portland Cement Co.  
Lehigh Portland Cement Co.  
Marquette Cement Mfg. Co.  
Northwestern States Portland Cement Co.  
Ohio & Western Lime Co.  
Peerless Port. Cement Co.  
Phoenix Portland Cement Co.  
Sandusky Portland Cement Co.  
St. Louis Portland Cement Works.  
Security Cement & Lime Co.  
Union Sand & Material Co.  
Universal Portland Cement Co.  
Vulcanite Portland Cement Co.  
Whitehall Portland Cement Mfg. Co.  
Wolverine Portland Cement Co.  
Woodville Lime & Cement Co., The.

## CHAINS.

Edgar Allen Amer. Mang. Steel Co.  
Columbus Chain Co., The.  
Jeffrey Mfg. Co.  
Taylor-Wharton Iron & Steel Co.

## CLAY AND FIRE CLAY.

Crossley, Geo. C.

## CLAYWORKING MCHY.

American Clay Mch. Co.  
Bartlett, C. O., & Snow Co.

## COAL CHUTES.

Kewanee Mfg. Co.

## COLORINGS, DRY AND MORTAR.

Samuel Cabot.  
Chattanooga Paint Co.  
Clinton Metallic Paint Co.  
Macneal, James B., & Co.  
Ricketson Mineral Paint Works.  
Williams, C. K., & Co.

## COMPRESSORS.

Clayton Air Compressor Co.

## CEMENT FLOOR HARDENERS.

Premier Flooring & Material Co.

## CONCRETE MIXERS.

Jaeger Mach. Co.  
Miscampbell, H.  
Power & Mining Mach. Co.

## CONCRETE REINFORCEMENT.

American Steel & Wire Co.

## CONVEYORS AND ELEVATORS.

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Austin Mfg. Co.  
Bartlett, C. O., & Snow Co.  
Caldwell, H. W., & Sons Co.  
Dull, Raymond W., & Co.  
Ehrsam, J. B., & Sons Mfg. Co.  
Goodrich Co., The B. F.  
Jeffrey Manufacturing Co.  
Link Belt Co.  
McMyler-Interstate Co.  
McLanahan Stone Machine Co.  
Power & Mining Mach. Co.  
Stephens-Adams Mfg. Co.  
Webster Mfg. Company.  
Weller Mfg. Co.

## CONSULTING GEOLOGISTS.

Grimsley, G. P., Ph. D.  
Robt. W. Hunt & Co.  
Lewis & Co., W. J.

## CORNER BEADS.

Bostwick Steel Lath Co., The.  
Penn Metal Co.

## CRANES—LOCOMOTIVE AND GANTRY.

Link Belt Co.  
McMyler-Interstate Co.

## CRUSHERS AND PULVERIZERS.

Allis-Chalmers Manufacturing Co.  
American Pulverizer Co.  
Austin Mfg. Co.  
Bacon, Earl C.  
Bartlett, C. O., & Snow Co.  
Bonnot Co., The.  
Bradley Pulverizer Co.  
Butterworth & Lowe.  
Ehrsam, J. B., & Sons Mfg. Co.  
Gruebler Patent Crusher & Pulverizer Co.  
Jeffrey Manufacturing Co.  
Kent Mill Co.  
Lewistown Foundry & Machine Co.  
Martin, Henry.  
McLanahan Stone Machine Co.  
Pennsylvania Crusher Co.  
Power & Mining Mach. Co.  
Raymond Impact Pulverizer Co.  
Symons Brothers.  
Sturtevant Mill Co.  
Taylor-Wharton Iron & Steel Co.  
Williams Pat. Crusher & Pulverizer Co.

## DRAIN TILE.

American Brick & Tile Co.  
American Clay Co.  
Evans Clay Mfg. Co.  
Mason City Brick & Tile Co.

## DRILLS.

Armstrong Mfg. Co.  
Cyclone Quarry Drill Co.  
Howells Mining Drill Co.  
Loomis Machine Co.

## DRYERS.

American Process Co.  
Bartlett, C. O., & Snow Co.  
Ruggles-Coles Eng. Co.  
Worrell, S. E.

## DUMP CARS.

Atlas Car & Mfg. Co.  
Austin Mfg. Co.  
Stephens-Adams Mfg. Co.  
Weller Mfg. Co.

## ENGINEERS.

Bacon, Earl C.  
A. P. Broomell.  
Duff Patents Co., Inc.  
Dull, Raymond W., & Co.  
Fuller Engineering Co.  
Grimsley, G. P.  
Robt. W. Hunt & Co.  
Improved Equipment Co.  
Kirkpatrick, W. C.  
Lewis, W. J., & Co.  
Meade, R. K.  
Nat'l Engineering Co.  
Sauerman Bros.  
Schaffer Eng. & Equip. Co.  
Smidth & Co., F. L.  
Stephens-Adams Mfg. Co.

## ENGINES.

Armstrong Mfg. Co.  
Busch-Sulzer Bros. Diesel Engine Co.  
Good Roads Mach. Co., The.  
Jackson & Church Co.  
Power & Mining Mach. Co.

## EXCAVATORS.

Raymond W. Dull Co.  
Indianapolis Cable Excavator Co.  
McMyler-Interstate Co.  
Jackson & Church Co.  
Owen Bucket Co.  
Sauerman Bros.  
Weller Mfg. Co.

## FIRE BRICK.

Carolina Portland Cement Co.  
Evans Clay Mfg. Co.  
Improved Equipment Co.  
Mason City Brick & Tile Co.  
Thornton Fire Brick Co.  
Thompson-Armstrong Co.  
Union Mining Co.

## FLUE LININGS.

Evans Clay Mfg. Co.  
Thompson-Armstrong Co.

## FURNACES FOR SPECIAL PURPOSES.

Improved Equipment Co.

## GEARS.

Edgar Allen Amer. Mang. Steel Co.  
Calowen, H. W., & Son Co.  
Stephens-Adams Mfg. Co.  
Taylor-Wharton Iron & Steel Co.  
Weller Mfg. Co.

## GLASS SAND MACHINERY.

Lewiston Fdy. & Mach. Co.

## GYPSUM—PLASTER.

American Cement Plaster Co.  
American Keene Cement Co.  
Best Bros. Keene's Cement Co.  
Cardiff Gypsum Co.  
Carolina Portland Cement Co.  
Giant Plaster Board Co.  
Kelly Plaster Co.  
National Mortar & Supply Co.  
Niagara Gypsum Co.  
Ohio & Western Lime Co.  
Plymouth Gypsum Co.  
Reeb, M. A.  
U. S. Gypsum Co.  
Wheeling Wall Plaster Co.

## HAIR.

Ohio & Western Lime Co.

## HOLLOW CLAY TILE.

American Clay Co.  
Mason City Brick & Tile Co.  
Metropolitan Paving Brick Co.  
Whitacre Fireproofing Co.

## HYDRATING MCHY.

Kritzer, Co., The.  
H. Miscampbell.

## LIME.

Carolina P. C. Co.  
Farnam-Cheshire Lime Co.  
Hannibal Lime Co.  
Kelley Island Lime & Trans. Co.  
Mitchell Lime Co.  
The Moores Lime Co.  
National Lime & Stone Co.  
National Mortar & Supply Co.  
Niagara Gypsum Co.  
Ohio & Western Lime Co., The.  
Owens & Son, John D.  
Scioto Lime & Stone Co.  
Security Cement & Lime Co.  
Woodville Lime & Cement Co.

## LIME, HYDRATED.

Hannibal Lime Co.  
Kelley Island Lime & Transport Co.  
Mitchell Lime Co.  
The Moores Lime Co.  
National Lime & Stone Co.  
National Mortar & Supply Co.  
Niagara Gypsum Co.  
Ohio & Western Lime Co., The.  
Owens & Son, John D.  
Scioto Lime & Stone Co.  
Security Cement & Lime Co.  
Woodville Lime & Cement Co., The.

## LIME KILNS.

A. P. Broomell.  
Improved Equipment Co.

## LOADERS.

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Link Belt Co.  
Stephens-Adams Mfg. Co.  
Weller Mfg. Co.

## LOCOMOTIVES.

Davenport Locomotive Wks.  
Willis Shaw Mch. Co.

## MANGANESE STEEL.

Edgar Allen American Manganese Steel Co.  
Taylor-Wharton Iron & Steel Co.

## METAL LATH.

Bostwick Steel Lath Co.  
Carolina Portland Cement Co.  
North Western Expanded Metal Co.  
Sykes Metal Lath & Roofing Co.

## MOTOR TRUCKS.

Kissel Kar Co.

## PAINT AND COATINGS.

Samuel Cabot.  
Chattanooga Paint Co.  
James B. Macneal & Co.  
Ricketson Mineral Paint Co.  
C. K. Williams & Co.

## PEBBLES.

Canada Pebble Co.

## PERFORATED METALS.

Cross Engineering Co.  
Johnson & Chapman.  
Hendrick Mfg. Co.

## PREPARED ROOFING—SHINGLES.

Carolina Portland Cement Co.  
Flintkote Mfg. Co.  
The Heppes Co.  
Reynolds Asphalt Shingle Co.

## PLASTER.

See Gypsum.

## PLASTER BOARD.

Giant Plaster Board Co.  
National Plaster Board Co.  
Niagara Gypsum Co.  
Plymouth Gypsum Co.  
U. S. Gypsum Co.

## PLASTER MCHY.

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Dunning, W. D.  
Ehrsam, J. B., & Sons Mfg. Co.  
Miscampbell, H.  
Williams Pat. Crusher & Pulverizer Co.

## ROAD MACHINERY.

Austin Mfg. Co.  
Troy Wagon Works.

## ROOFING-METAL.

Sykes Metal Lath & Roofing Co.

## SEWER PIPE.

Evans Clay Mfg. Co.  
Houston Bros. Co.  
Plymouth Clay Products Co.  
Thompson-Armstrong Co.

## SILLO BLOCKS.

American Brick & Tile Co.  
Mason City Brick & Tile Co.

## QUARRY CARS.

See Dump Cars.

## SAND.

Crossley, Geo. C.  
Union Sand & Material Co.

## SAND AND GRAVEL WASHING PLANTS.

Dull & Co., Raymond W.  
Stephens-Adams Mfg. Co.  
Webster Mfg. Co.  
Weller Mfg. Co.

## SAND LIME BRICK MACHINERY.

Amer. Clay Mach. Co.  
Jackson & Church.

## SCREENS.

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Cross Engineering Co.  
Dull & Co., Raymond W.  
Edgar Allen Amer. Mang. Steel Co.  
Ehrsam, J. B., & Sons Mfg. Co.  
Hendricks Mfg. Co.  
Johnston & Chapman Co.  
McLanahan Stone Machine Co.  
National Eng. Co.  
Power & Mining Mach. Co.  
Stephens-Adams Mfg. Co.  
Sturtevant Mill Co.  
Webster Mfg. Company  
Weller Mfg. Co.

## STEAM SHOVELS.

Marion-Osgood Co., The.  
Thev Automatic Shovel Co.  
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## SINK AND FLOAT TESTERS.

Pennsylvania Crusher Co.

## STEAM SHOVEL TEETH.

Edgar Allen Am. Manganese Steel Co.  
Taylor-Wharton Iron & Steel Co.

## STUCCO RETARDER.

National Retarder Co.

## TIRES—RUBBER.

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Jackson & Church Co.  
Power & Mining Mach. Co.  
Smidth & Co., F. L.

## WAGONS.

Troy Wagon Wks. Co., The

## WALL PLUGS AND TIES.

Allegheny Steel Band Co.  
Sykes Metal Lath & Roofing Co.

## WATERPROOFING.

Cabot, Samuel, Inc.  
Carolina Portland Cement Co.  
Cement Waterproofing Co.  
Hercules Waterproofing Cement Co.  
Maumee Chemical Co.  
Sandusky Portland Cement Co.

## WEIGHING MACHINES.

Automatic Weighing Machine Co.  
Schaffer Eng. & Equip. Co.  
Sturtevant Mill Co.

## WELDING AND CUTTING APPARATUS.

Engineering Sales Corporation.

## WIRE AND WIRE FENCING.

American Steel & Wire Co.



## CANADA PEBBLES

Carefully selected  
as to size.

Best shapes.

Will not break or  
flake in Tube Mill.

### CANADA PEBBLE CO., Limited

*Highest Grade Grinding  
Pebbles for Tube Mills*

General Offices  
**PORT ARTHUR**  
Ontario, Canada

Branch Office  
**CHICAGO, ILL.**  
537 S. Dearborn St.

*The Quickest and Cheapest Method of Unload-  
ing Material from Ground Storage to Wagons or  
Cars is a*

### Jeffrey Portable Self-Pro- pelling Wagon Loader



**Easily handles 1 ton of coal or 2 tons of Sand,  
Stone, Gravel, etc., per minute.**

Simple and easily operated by one man (does not require  
skilled labor). Self-propelling in either direction. Operated by  
Electric Motor or Gasoline Engine.

Send for Bulletin No. 96, giving full particulars

### Jeffrey Mfg. Co., Columbus, Ohio

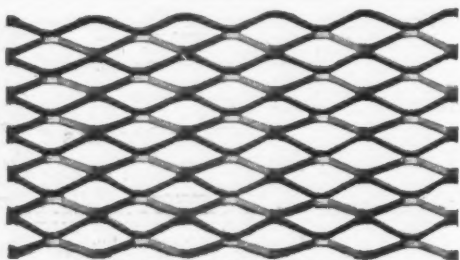
New York  
Charleston, W. Va.

Philadelphia  
Chicago

Cleveland  
Birmingham

Boston  
Montreal

Pittsburgh  
Denver

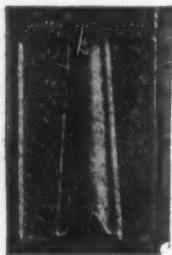


**SYKES EXPANDED CUP LATH  
SELF-FURRING**

HAS NO EQUAL FOR

### STUCCO WORK

Furnished with either an anti-rust (oil) coat-  
ing, painted black or galvanized, packed in  
bundles containing 20 square yards, size of  
sheets 18x96 in.; in gauges  
27, 26, 25 and 24.



### SYKES "IMPERIAL" SHINGLE.

SIZE 10 x 14 and  
14 x 20 INCHES.

We also manufacture all  
styles of roofing and sid-  
ing, such as corrugated, v  
crimp, pressed standing  
seam, roll roofing, brick  
siding, weather board siding, beaded ceil-  
ing, etc.

## Sykes Metal Lath

Present opportunities for the dealers to  
double their sales in this line, as Archi-  
tects are specifying and building con-  
tractors are using SYKES products.

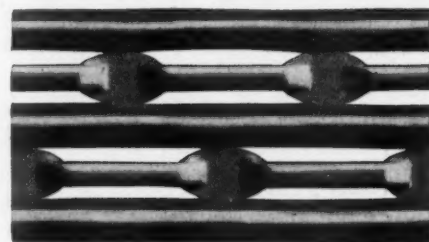
### BASIC REASONS

**SYKES EXPANDED CUP LATH** is self-fur-  
ring. This greatly reduces the cost of construction  
on every building where it is used. It is more  
economical in the amount of plaster required than  
any other expanded lath. Quickly erected as both  
sides are alike, cannot be applied wrong.

**SYKES TROUGH SHEET LATH** is incompar-  
able in its utility for inside plaster work. Can be  
used to great advantage on any kind of a building.  
Unusual design, strength and keying principle.

### WHY NOT HANDLE OUR PRODUCTS AND INCREASE YOUR PROFITS.

Write us at once for our SPECIAL EXCLUSIVE  
SALES PROPOSITION, SAMPLES, ETC.

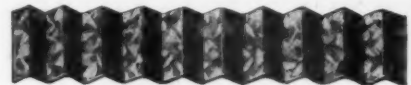


### Sykes Trough Sheet Lath

**The Strongest and  
Most Durable Lath Made**

### Perfect for Interior Work

Furnished with either an Anti-Rust (oil) coat-  
ing, painted black or galvanized. Size of sheets,  
13½, 15½, 18½, 23½ in. wide by 96 in. long.



### SYKES WALL TIE

Standard Tie 7 in. long  
Veneer Tie 6 in. long

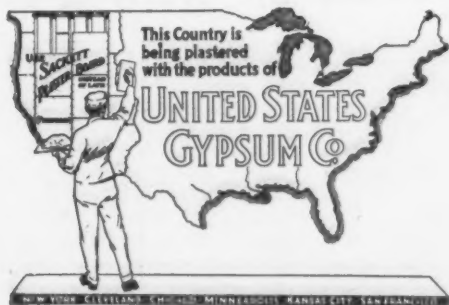
We also make Metal Corner Bead

**THE SYKES METAL LATH & ROOFING CO.,**  
508 Walnut Street, NILES, OHIO

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



THE LOGICAL LATHING MATERIAL  
THE BEST IN GYPSUM PLASTER



### PYROBAR GYPSUM TILE

Recognized highest standard of efficiency  
in Fire-Proofing

**U. S. G. PRODUCTS—"THE PROGRESS OF THE GYPSUM INDUSTRY"**

## AUTOMATIC WEIGHING MACHINE COMPANY High Grade Automatic Scales

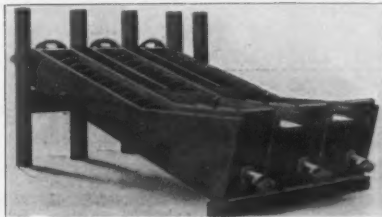
Main Office and Factory, NEWARK, N. J., No. 134-140 Commerce St.

Agency, Detroit, Mich., 28 Woodbridge St., East

### TISCO MANGANESE STEEL CASTINGS

FOR SEVERE SERVICE

**TAYLOR-WHARTON IRON & STEEL CO.**  
HIGH BRIDGE, . . . . . NEW JERSEY



Sand Washers

**LEWISTOWN FOUNDRY &  
MACHINE CO.** Lewistown, Pa.

Builders of heavy duty crushers and  
glass sand machinery.

Glass sand plants equipped complete

Write for prices and catalog

**Why  
?**

**Gives  
You**

**Gives  
You**

**Gives  
You**

SELL  
**"BOST-  
WICK"**  
FOR  
QUALITY  
SERVICE  
AND  
PROFITS

SPLIT YOUR METAL BUSINESS WHEN

## The "Bostwick" Line

Weight, Quality, Design and Efficiency that is Unequaled.

Immediate Deliveries From One of  
the Largest Finished Stocks in the  
Country.

"Bostwick Truss-Loop" Metal Lath.

"Bostwick Truss-V. Rib."

"Bostwick Diamond A Expanded Metal."

"Bostwick" Corner Bead, Clips Adjustable to any Ground.

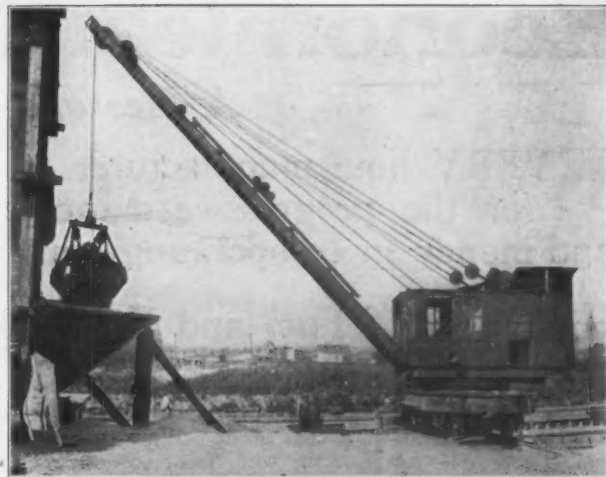
"Bostwick" Metal Wall Plugs.

"Bostwick" Corrugated Wall Ties.

"Bostwick" Y Wall Ties.

**The Bostwick Steel  
Lath Company**

NILES, OHIO



## There is a Quicker and Better Way

of handling Sand, Gravel, Crushed Limestone, and kindred materials.  
It's more economical too.

It's the

### "McMyler Interstate Way"

The McMyler Interstate Crane shown above is owned and operated by  
the Artesian Lime & Stone Company. It is fitted with our Multi  
Power Bucket and the photo shows it handling crushed limestone.  
We've solved a good many of our customers' problems.  
Can't we help you with yours?

**The McMyler Interstate Co.**

Dept. P-1, Cleveland, Ohio.

London

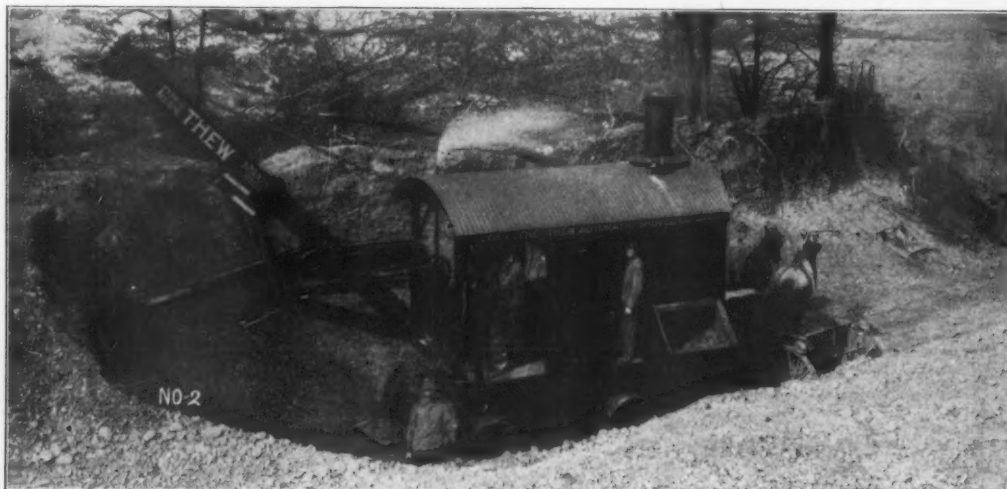
New York

Chicago

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



## Large Outputs Can be Secured with a Small Thew Shovel



This Type O Thew Shovel loaded gravel as follows:

DATE	HOURS	CU. YDS.	YDS. PER HOUR
Oct. 10	10	687	69
" 11	6	437	73 (Rain)
" 13	10	875	87
" 14	10	687	69
" 15	10	750	75
" 16	10	750	75
" 17	7½	574	76 (Rain)
" 18	5	422	84 (Forenoon only)

Total  
7½ Days 68½ 5182 76

Total yards in contract, over . . 50,000  
10 Hour Days operated = 82  
Cubic Yards per day = 609

Type O Shovel in a Gravel Pit

Another Contractor sends us the following results secured with his Type 1 Thew Shovel in his gravel pit:

DATE	HOURS OPERATED	CARS LOADED	CUBIC YARDS	DATE	HOURS OPERATED	CARS LOADED	CUBIC YARDS
Oct. 4	6½	220	1366	Oct. 16	9	224	1175
" 5	10	232	1103	" 19	10	314	1885
" 6	7½	232	1475	" 25	8	216	1158
" 8	5	216	1153	" 28	9½	276	1582
" 10	5	192	1142				
" 12	10	271	1724	Totals 11 days	85½	2605	14,942
" 15	5	192	1179	Average "	7½	237	1,359

Use a Thew. It Pays

THE THEW AUTOMATIC SHOVEL CO.,  
LORAIN, OHIO

## Economical Lime Production

### A Message to the Manufacturer

EVERY lime manufacturer is looking for **economy**—and I am looking for the progressive manufacturer who is willing to spend some time and money in co-operating with me for lower **cost of production**.

#### High Cost of Fuel and Fuel Labor

About 90% of the lime manufacturers burn their product with wood or coal direct fired, and obtain less than 20% efficiency of the fuel, thus losing 80%. This 80% of the fuel is not only lost but the total labor cost of handling is also lost.

#### Use of Rich Combination Gas

No engineer or chemist will dispute the fact that high grade lime can be produced by firing the kilns with gas, providing the temperature and moisture in the kiln can be absolutely controlled.

#### Quality of Gas Essential

I will design and have installed for you a gas plant that will produce a rich, cool, clean gas, placed under pressure and distributed in small service lines, fed into the burner under gate valve control. All air for combustion to be handled in separate service lines in the same manner. The gas would have a heating value of 300 B. T. U. and up, with a temperature not exceeding 300 degrees at the generator as against ordinary producer gas at 125 B. T. U. and 1200 degrees.

Write TODAY for Further Information

**W. C. KIRKPATRICK, Consulting Engineer**

615 Chamber of Commerce Building, Chicago, Illinois

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



M-O "43" 1 1/2-yd. Traction Shovel. Stone Quarry of John D. Owens & Son, Owens, Ohio.

STEAM SHOVELS

DIPPER DREDGES

BALLAST UNLOADERS

### M-O "43" 1 1/2 Yd. Traction Shovel

#### Spur Gear Drive and Separate Steering Engine

The Railroad Shovel is readily converted into a Traction shovel by removing the trucks, jacks, Couplers, air brakes, etc., and then bolting up underneath the frame, the forward and rear traction axles and the driving shafts. The steering engine is mounted on the floor at the extreme rear end of the shovel and is connected to a steering screw for slewing the rear axle. Power for driving is transmitted from the main engines by spur gearing direct to the traction wheels on the front axle, thus doing away entirely with the bothersome sprocket chains now employed for this purpose. The steering lever is placed within easy reach of the shovel runner, when in his usual position, so that he has full control of the steering and propelling movements.

### THE MARION-OSGOOD COMPANY

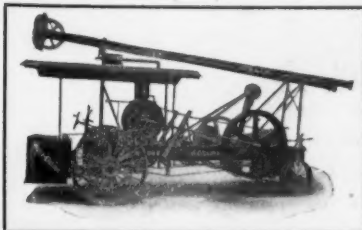
Eastern Office:  
51 STATE STREET, ALBANY, N. Y.

Marion, Ohio, U. S. A.

## NOT A WELL DRILL, BUT A BIG BLAST HOLE DRILL

### THE CYCLONE No. 14

A MACHINE ESPECIALLY DESIGNED FOR BIG HOLE QUARRY DRILLING



SIXTY LONG SMASHING BITES PER MINUTE, AND EACH BITE MEANS A CUT IN THE COST OF PRODUCTION AND AN INCREASE IN PRODUCTION. THE RAVENOUS APPETITE OF THE CYCLONE CANNOT BE SATIATED WITH 24 HOURS PER DAY OF ROCK-DEVOURING.

IT HAS A "BACKBONE" OF STEEL WHICH WILL WITHSTAND THE MOST EXTREME STRAINS OF QUARRY DRILLING. RAIN, SNOW AND ICE CANNOT INTERFERE WITH THIS COST-CUTTER OF THE QUARRY. NO SLIPPING NOR LOST TRANSMISSION—NO RESTING OF TOOLS AT THE BOTTOM OF THE HOLE.

WE WILL PLACE THIS DRILL IN YOUR QUARRY UNDER YOUR OWN SUPERVISION AGAINST ANY BIG BLAST HOLE DRILL ON THE MARKET, AND WILL GUARANTEE IT TO DRILL MORE HOLE AT LESS EXPENSE THAN ANY MACHINE IN THE CONTEST. YOU ARE THE JUDGE.

NEW YORK OFFICE  
50 CHURCH STREET

WRITE FOR OUR B-25 CATALOG.

THE CYCLONE DRILL CO., ORRVILLE, OHIO.

CHICAGO OFFICE  
418 HARTFORD BLDG.

## THIS BUCKET WAS BUILT FOR YOU



if you are looking for results which make "low cost," material handling possible. The Type "E"

## OWEN BUCKET

is primarily constructed and designed for "hard digging" but is adjustable for speed of operation in "easy digging." The ideal bucket for loading and unloading

purposes in Sand, Gravel, Crushed Rock, etc. Ask us for tried and proven Owen-Bucket results in your material.

**THE OWEN BUCKET COMPANY**  
629 ROCKEFELLER BUILDING CLEVELAND, OHIO

## HOWELLS DRILLS

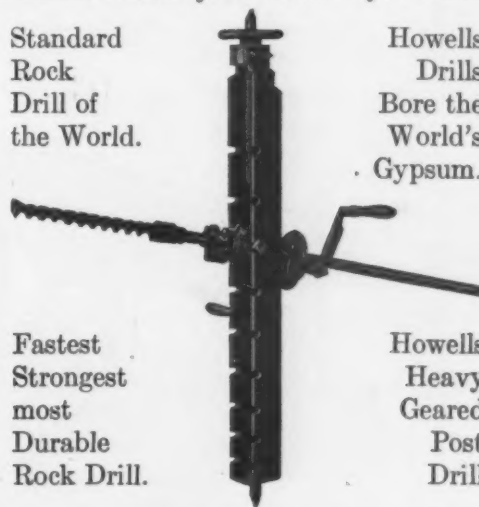
for all purposes where drills are required. Combine efficiency and economy.

Standard  
Rock  
Drill of  
the World.

Howells  
Drills  
Bore the  
World's  
Gypsum.

Fastest  
Strongest  
most  
Durable  
Rock Drill.

Howells  
Heavy  
Geared  
Post  
Drill



Thousands of these drills doing duty everywhere—speak for themselves.

These drills have a record—can't be beat. Will drill from five to seven inches per minute in gypsum or soft rock.

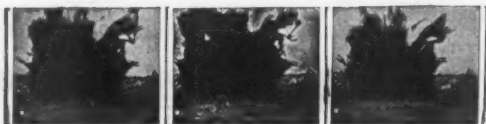
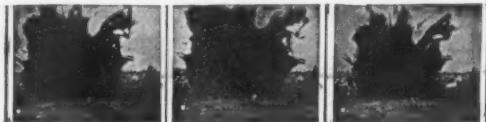
We make over 40 different kinds of Auger  
Drills, operated by Hand, Electricity and Air

**Howells Mining Drill Company**  
Plymouth, Pa., U. S. A. :: Write for Catalogue No. 28 today

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



## Which is the Cheaper and Better Way?



6 small bench shots like this—each one stopping work of the steam shovels, dinky engine crews and cars—and laborers.

OR

One big face blast—one stop for shovels, engine crews and cars as done by



## Armstrong Special Blast Hole Cable Drills



**BLAST HOLE DRILLS**  
BUILT FOR SERVICE SINCE 1867

### A FEW WORDS ON BLAST HOLE DRILLING

Economical blast hole drilling is a matter of getting the greatest footage of hole drilled in the shortest time with the least possible cost. The blow of the falling string of tools is the real

factor in the case, and upon the conditions surrounding the action of the drilling tools depends the economy of the process. With a given weight of tools, the speed of drilling depends upon the length of the stroke, to be more exact, the actual height of drop of the tools, and the number of strokes per minute which can be freely made. These two conditions are vital to rapid and efficient blast hole drilling and are made nearly 100 per cent efficient in the "Special Armstrong Blast Hole Drill."

This is how we do it:

The "Special Armstrong Blast Hole Drill" embodies an important feature of design not found in any other type of cable drill made today, which makes possible the wonderful records which it is achieving in quarries throughout the country. The above mentioned improvements lie in the straight crank motion of the spudding beam and the proper location of the spudding sheave. It eliminates the "whipping" of the cable, it increases the lift of the tools on each stroke and makes possible a greater number of strokes per minute for a given crank throw and gives an absolutely free drop to the tools. In other words, it makes more efficient the two conditions which are required for rapid drilling, the greatest number of powerful blows; in other words, the maximum foot pounds of energy delivered at the bottom of the hole, within a time limit.

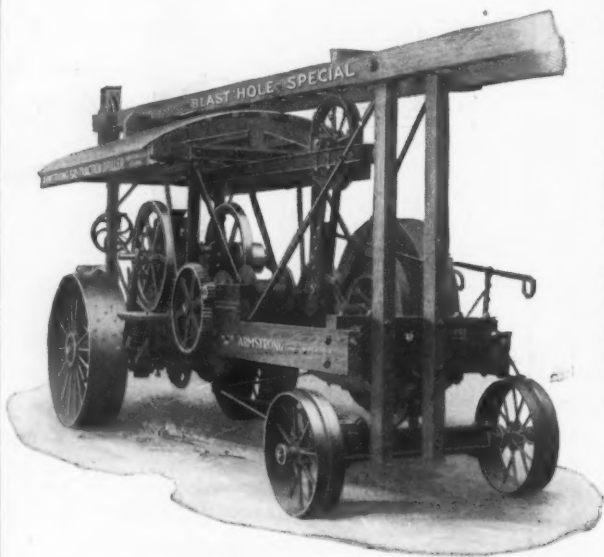
We can prove with authoritative records covering in detail periods of six months' duration that the increased efficiency of the Special Armstrong Blast Hole Drill is from 40 to 50 per cent over similar sized cable drills of other makes.

Fundamentally and finally, this machine is built for **BLAST HOLE** purposes only. It is not a well drill. We do not furnish it for any other purpose than drilling blast holes. Let us know your conditions and we *absolutely guarantee* an increased footage per day or over a long period at a lower cost.

Write for Bulletin E, giving data and records, and let us have an opportunity to prove our case.

**ARMSTRONG MFG. CO.**  
Waterloo, Iowa, U. S. A.

Eastern and Export Office  
17 Battery Place  
New York City  
Canadian Branch: Drinkle Block No. 2, Saskatoon, Sask.  
Western Branch  
3rd and San Pedro Streets  
Los Angeles, Cal.



Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

WHEN YOU ORDER, SPECIFY

**"Peerless" Portland Cement**

BECAUSE:

ITS "QUALITY" represents the highest point of perfection in cement manufacture:

THE "ECONOMY" obtainable by its use is the greatest owing to its high sand carrying qualities:

THE "SERVICE" in prompt shipment is unsurpassed because of the special train service daily furnished by the Michigan Central Railroad for the handling of this Company's business.

**PEERLESS PORTLAND CEMENT COMPANY**

Office and Works: Union City, Branch County, Michigan

**"WOLVERINE"**

The Alright Cement

MADE RIGHT SOLD RIGHT  
WORKS RIGHT  
WEARS RIGHTThe Best is None Too Good For You.  
Insist Upon**"WOLVERINE"**Write for Booklet and Quotations.  
Factories at Coldwater and Quincy, Mich.  
Capacity 3500 Daily.**WOLVERINE PORTLAND CEMENT COMPANY**W. E. COBEAN, Sales Agent,  
Coldwater, Michigan

Main Office, Coldwater, Mich.

**Northwestern Portland Cement**The Reliable Portland  
CementA Portland Cement  
for the**NORTHWEST****NORTHWESTERN STATES PORTLAND CEMENT COMPANY**

MASON CITY, IOWA

**THE CLAYTON HIGH SPEED SELF-OILING****Air Compressors**

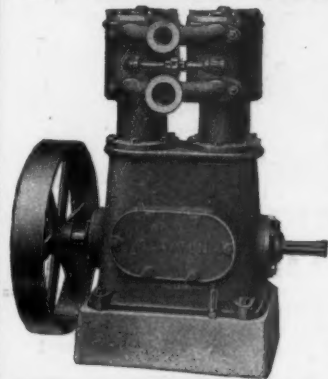
Single, Duplex and Triplex

can be Coupled Direct or Belted to your  
Electric Motor or other source of power.  
Simple, Efficient, Convenient and Depend-  
able. Best Machines for Small Pneumatic  
Tools, Riveters, Air Drills, Cleaning Mach-  
inery, Air Hoists, Moulding machine and  
small Foundry work, and other Machine  
Shop Service.

Send for Bulletin C-212-58.

**Clayton Air Compressor Works**

Works: East Cambridge, Mass.

**New York Office: 115 Broadway**Branch Offices in all Principal Cities.  
C165.1

**W**HEN a silo, a hedge, a tank, or  
a house of Portland Cement is  
built, it should be done once for all.  
Use perfect cement; which means

## Marquette Portland Cement

Certified to by the leading independent  
chemists and sold by a perfect organi-  
zation whose one idea is to render  
service.

The green guarantee tag on every bag of  
Marquette Portland Cement means we  
have made it better than government  
specifications; as much better as possible.

*Look for the green tag.*

We have an interesting book on "Concrete Roads and Pavements," it's free; send for it.

**Marquette Cement Mfg. Co.**

1335 Marquette Building

Chicago

WRITE US FOR PRICES ON

# PAPER BAGS

for

**Lime, Cement, Plaster, Ground  
Stone, Fertilizer, Etc.**

**The Urschel-Bates Valve Bag Company****Toledo, Ohio**

[Address all communications to the company at Toledo, Ohio.]

BRANCH FACTORIES: Niagara Falls, Ontario, Can., Pittsburgh, Penn.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS





**They  
Make  
Friends  
For  
You!**

Because Rex-tile Shingles appeal so strongly to every owner and contractor, they are a big advertisement for the dealer who handles them.

You must have seen our national advertising campaign. It has impressed on the public the unique features of Rex-tile Shingles.

You remember that we have pointed out to owners and builders everywhere why Rex-tile Shingles have the advantage over any other type.

The color is an integral part of the Shingle itself and so cannot wear away or streak. Choice of a soft dull red or blue-black slate color.

### **The Turn-under fold for nailing gives a double rounded butt-end**

protecting all nails against weather and securely fastening the shingle at the bottom. Water can't "back up." No chance to flap, warp, crack or curl up. Absolutely wind-proof. This feature is patented and exclusive.

*Write for samples of Rex-tile Shingles  
and special proposition to dealers.*

**FLINTKOTE MANUFACTURING CO.**  
91 Pearl St., Boston 658 Peoples Gas Bldg., Chicago

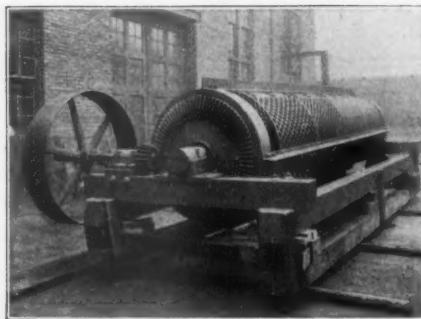
*Manufacturers of the Famous Rex Flintkote Roofing for factories,  
warehouses, farm buildings, etc.*

Also manufacturers of Paradux—a waterproof canvas covering for all surfaces on which walking will be done—such as sleeping porches, piazza roofs, roof gardens, balcony roofs, boat decks, etc. Easier to lay than tin or metal—far more durable—requires no special preparation of the surface to be covered. Can be painted any color desired.

**WELL ER-MADE**

**For quarry, sand  
and gravel pit, cement mill, etc.**

## **Revolving Screens**



for sizing  
any stone  
from  
screenings  
up to any  
desirable  
size

## **Heavy Steel Bucket Elevators**

**For handling  
stone direct  
from crushers**

**Any style of  
bucket and  
chain  
up to 84" width  
of bucket**

*Complete  
Elevating, Conveying  
and Power  
Transmitting Systems*



**WELLER MFG. CO.**  
**CHICAGO**

**NEW YORK**  
50 Church Street

**Branch Offices:**  
**ST. LOUIS**  
520 Victoria Bldg.

**DALLAS**  
711 Main Street

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

**National Plaster Board**

Is an insulator, keeping the house cooler in Summer.

Is an excellent sound-deadener.

Is carefully made, has a true, even surface and neatly trimmed edges. Makes perfect walls.

Eliminates cracks.

Forms a perfect bond with plaster, insuring strong, rigid walls.

**The National Plaster Board Co.**  
CLEVELAND, OHIO

**Wood Lath**

Does not insulate.

Has no sound-deadening value.

Is made from refuse lumber, the quality is becoming poorer every year. Scraps good for nothing else are made into lath.

By swelling, causes lath cracks.

Does not bond with plaster. Walls and ceilings are easily loosened and liable to fall off.

**"Clipper"****Blast Hole Drill**

Known as "The Drill That Drills"

Driven by **Steam, Compressed Air, Gasoline or Electric Power**; is made in many sizes and types and is thoroughly up-to-date.

This simple, economical and long lasting machinery is used by the leading **Cement Manufacturers, Stone Producers and Railroad Contractors** of the present day. The "CLIPPER" is a Blast Hole Drill!

It **has always been** a Blast Hole Drill!

It was never **called** a Blast Hole Drill for a few weeks and then changed in hopes it **could be made** a Blast Hole Drill!

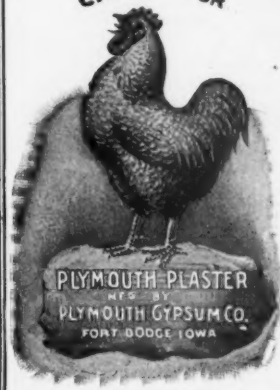
It is a Blast Hole Drill **for all conditions**—soft rock and hard rock—shallow holes and deep holes; in fact, with a "CLIPPER" Machine **you are safe!**

*There is not a cog wheel in the drilling part of the "CLIPPER" MACHINE.*



**THE LOOMIS MACHINE CO.**  
TIFFIN, OHIO

CROWING FOR



**PLYMOUTH PLASTER  
WOOD FIBER PLASTER  
PLYMOUTH FIREPROOF  
PARTITION BLOCKS  
SACKETT PLASTIC BOARD  
STEEL STUDDING**

THE QUALITY BRANDS

WRITE US FOR PRICES AND  
ADVERTISING MATTER

**Plymouth Gypsum Co.**  
Fort Dodge, Iowa

**AMERICAN CEMENT PLASTER COMPANY**

General Offices: Lawrence, Kansas.

-:-

-:-

Branch Offices: Columbus, Ohio. Ft. Dodge, Iowa.

MANUFACTURERS OF

**Wall Plaster, Wood Fiber Plaster  
Molding and Dental Plaster  
Finish Plaster  
Wall Board and  
Gypsum Partition Tile**

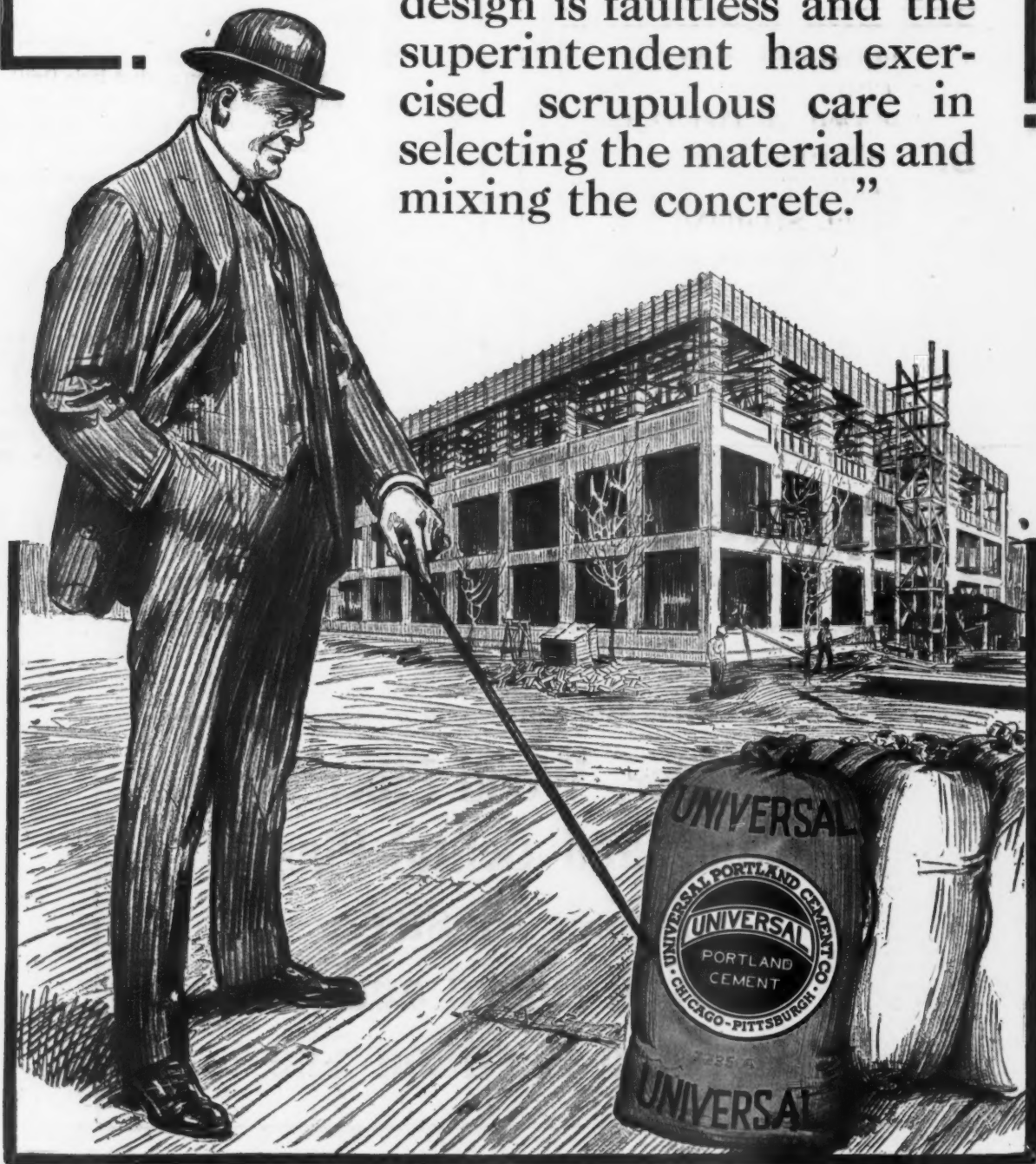
**AGENTS FOR BEST BROS. KEENE'S CEMENT**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



**"This is going to be a Good Job—**

**UNIVERSAL—absolutely reliable  
Portland cement is being used—the  
design is faultless and the  
superintendent has exer-  
cised scrupulous care in  
selecting the materials and  
mixing the concrete."**

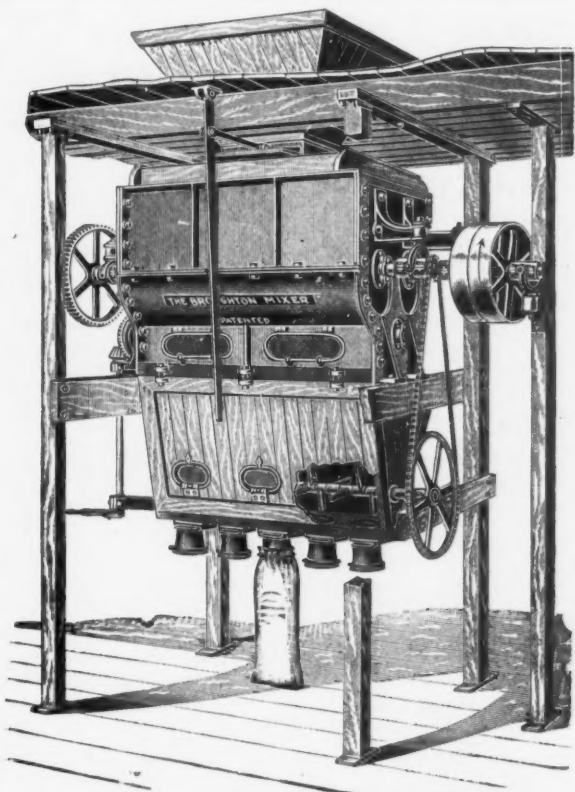


Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS







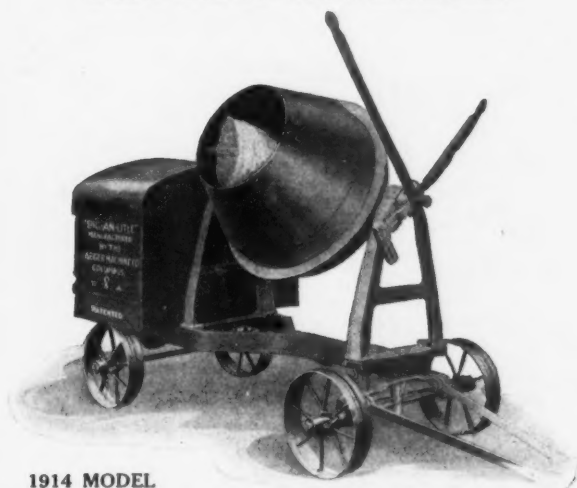


The most thorough and efficient  
Mixers of Plaster, Cement and  
Dry Materials. Send for Circular.

**W. D. DUNNING, Water St., Syracuse, N. Y.**

## STOP! LOOK! LISTEN!

JUST THE MIXER YOU'VE BEEN WISHING FOR  
The BIG-AN-LITTLE



1914 MODEL

Just a Little Bit Better Than The One You Thought Was Best

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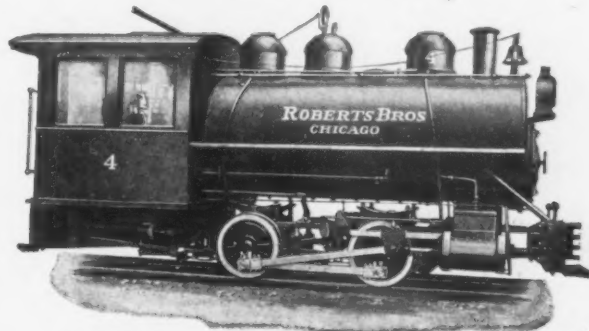
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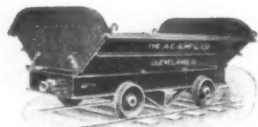
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